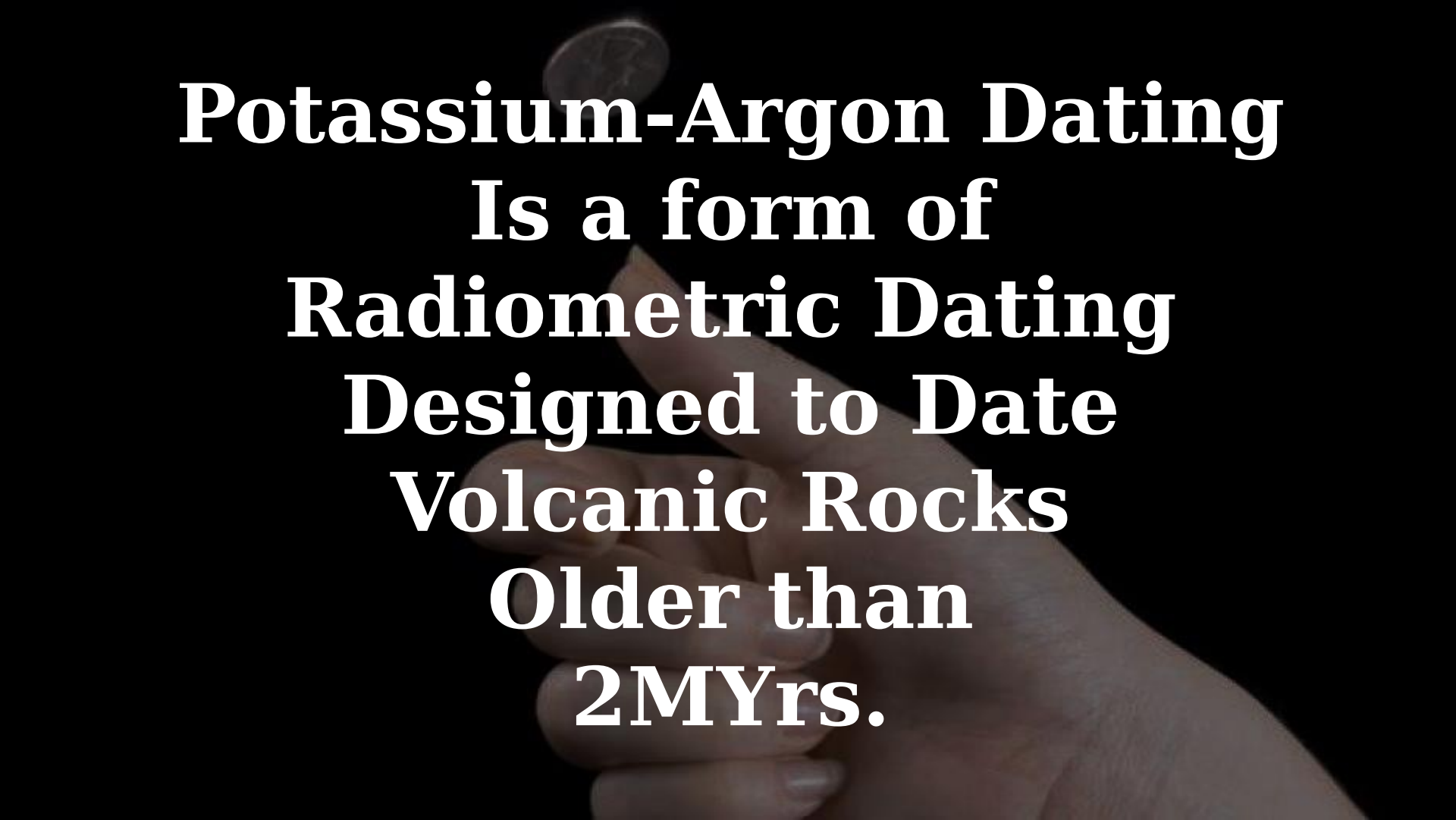


Potassium Argon Dating



A close-up photograph of a hand holding a coin, likely a US quarter, between the thumb and index finger. The background is dark, and the text is overlaid in white. The text reads:

Potassium-Argon Dating
Is a form of
Radiometric Dating
Designed to Date
Volcanic Rocks
Older than
2MYrs.

Potassium-Argon Dating

Palaeontologists

ral history museum. New Scientist, 29
in particular by his
remark that “Originally, palaeontologists
dated fossils by identifying the geological
strata in which they were found. Today, the
age of a fossil is determined by measuring
the decay of radioactive carbon or by
means of the decay of their radioactive
potassium into argon”. I agree whole-
heartedly with his plea for the
can hardly withhold

Physicists



New
Scientist
10Nov83
Vol. 100
No 1383
Pg. 425

Radiometric Dating



New
Scientist
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occasion when it has been put to an immediate practical use. Apart from very “modern” examples, which are really archaeology, I can think of no cases of radioactive decay being used to date fossils. In fact, fossils such as small marine invertebrates and plant spores and pollen are constantly used as precision tools in dating the rocks. We are measuring in millimetres while the physicists are measuring in kilometres. There are even

Professor Derek Ager is head of the Department of Geology at the University College of Swansea.



How old is this volcano?

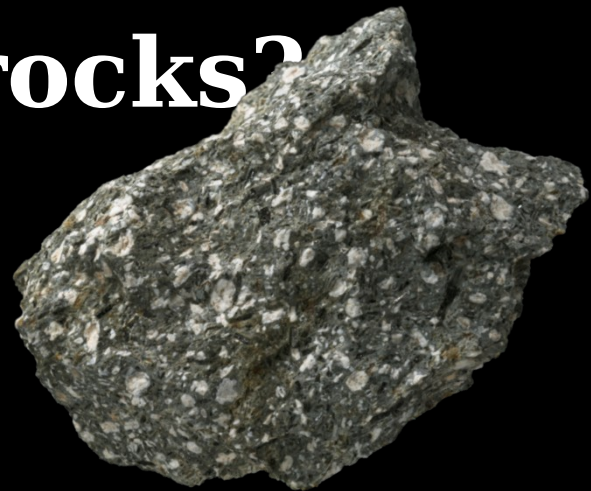
How old are these rocks??

A dramatic volcanic eruption at night. A bright, glowing lava flow is visible, with a large plume of smoke or ash rising into the dark sky. The lava flow is a bright orange-yellow color, contrasting sharply with the dark background. The plume of smoke is a dark, billowing mass that rises from the eruption point. The overall scene is one of intense heat and power.

How old is this lava?

When did the volcano erupt?

How old are these rocks?



Radiometric Dating



Some Elements are Radioactive

Some Elements are Radioactive																		IS VIIIA 8A					
1 IA 1 H Hydrogen 1.008																	13 IIIA 3A B Boron 10.811	14 IVA 4A C Carbon 12.011	15 VA 5A N Nitrogen 14.007	16 VIA 6A O Oxygen 15.999	17 VIIA 7A F Fluorine 18.998	18 VIIIA 8A Ne Neon 20.180	
3 Li Lithium 6.941	4 Be Beryllium 9.012																	13 Al Aluminum 26.982	14 Si Silicon 28.086	15 P Phosphorus 30.974	16 S Sulfur 32.066	17 Cl Chlorine 35.453	18 Ar Argon 39.948
11 Na Sodium 22.990	12 Mg Magnesium 24.305	3 IIIB 3B 21 Sc Scandium 44.956	4 IVB 4B 22 Ti Titanium 47.88	5 VB 5B 23 V Vanadium 50.942	6 VIB 6B 24 Cr Chromium 51.996	7 VIIB 7B 25 Mn Manganese 54.938	8 VIII 8 26 Fe Iron 55.845	9 VIII 9 27 Co Cobalt 58.933	10 VIII 10 28 Ni Nickel 58.693	11 IB 1B 29 Cu Copper 63.546	12 IIB 2B 30 Zn Zinc 65.38	31 Ga Gallium 69.723	32 Ge Germanium 72.631	33 As Arsenic 74.922	34 Se Selenium 78.971	35 Br Bromine 79.904	36 Kr Krypton 84.738						
19 K Potassium 39.098	20 Ca Calcium 40.078	39 Y Yttrium 88.906	40 Zr Zirconium 91.224	41 Nb Niobium 92.906	42 Mo Molybdenum 95.95	43 Tc Technetium 98.907	44 Ru Ruthenium 101.07	45 Rh Rhodium 102.906	46 Pd Palladium 106.42	47 Ag Silver 107.868	48 Cd Cadmium 112.414	49 In Indium 114.818	50 Sn Tin 118.711	51 Sb Antimony 121.760	52 Te Tellurium 127.6	53 I Iodine 126.904	54 Xe Xenon 131.29						
55 Cs Cesium 132.905	56 Ba Barium 137.328	57-71 Lanthanide Series	72 Hf Hafnium 178.49	73 Ta Tantalum 180.948	74 W Tungsten 183.84	75 Re Rhenium 186.207	76 Os Osmium 190.23	77 Ir Iridium 192.217	78 Pt Platinum 195.085	79 Au Gold 196.967	80 Hg Mercury 200.592	81 Tl Thallium 204.383	82 Pb Lead 207.2	83 Bi Bismuth 208.980	84 Po Polonium [209]	85 At Astatine 209	86 Rn Radon 222						
87 Fr Francium 223	88 Ra Radium 226	89-103 Actinide Series	104 Rf Rutherfordium [261]	105 Db Dubnium [262]	106 Sg Seaborgium [266]	107 Bh Bohrium [264]	108 Hs Hassium [269]	109 Mt Meitnerium [268]	110 Ds Darmstadtium [269]	111 Rg Roentgenium [272]	112 Cn Copernicium [277]	113 Uut Ununtrium unknown	114 Fl Flerovium [289]	115 Uup Ununpentium unknown	116 Lv Livermorium [293]	117 Uus Ununseptium unknown	118 Uuo Ununoctium unknown						
Lanthanide Series			57 La Lanthanum 138.905	58 Ce Cerium 140.116	59 Pr Praseodymium 140.908	60 Nd Neodymium 144.243	61 Pm Promethium 144.913	62 Sm Samarium 150.36	63 Eu Europium 151.964	64 Gd Gadolinium 157.25	65 Tb Terbium 158.925	66 Dy Dysprosium 162.500	67 Ho Holmium 164.930	68 Er Erbium 167.259	69 Tm Thulium 168.934	70 Yb Ytterbium 173.055	71 Lu Lutetium 174.967						
Actinide Series			89 Ac Actinium 227.028	90 Th Thorium 232.038	91 Pa Protactinium 231.036	92 U Uranium 238.029	93 Np Neptunium 237.048	94 Pu Plutonium 244.064	95 Am Americium 243.061	96 Cm Curium 247.070	97 Bk Berkelium 247.070	98 Cf Californium 251.080	99 Es Einsteinium [254]	100 Fm Fermium 257.095	101 Md Mendelevium 258	102 No Nobelium 259	103 Lr Lawrencium [262]						

One element changes into another.



Parent

Decays

Daughter



Parent

Decays

Daughter

How it is suppose to work

Time

Parent → Daughter

Start

100%

Half

50%

50%

4+

75%

75%

12.5%

87.5%

End

0 %

100%

It ALWAYS runs DOWN!

How it is suppose to work

Time	Parent	→	Daughter
Start	100%		0 %
Half	50%		50%
4th	25%		75%
8th	12.5%		87.5%
End	0 %		100%

How it is supposed to

Time

Part

Start

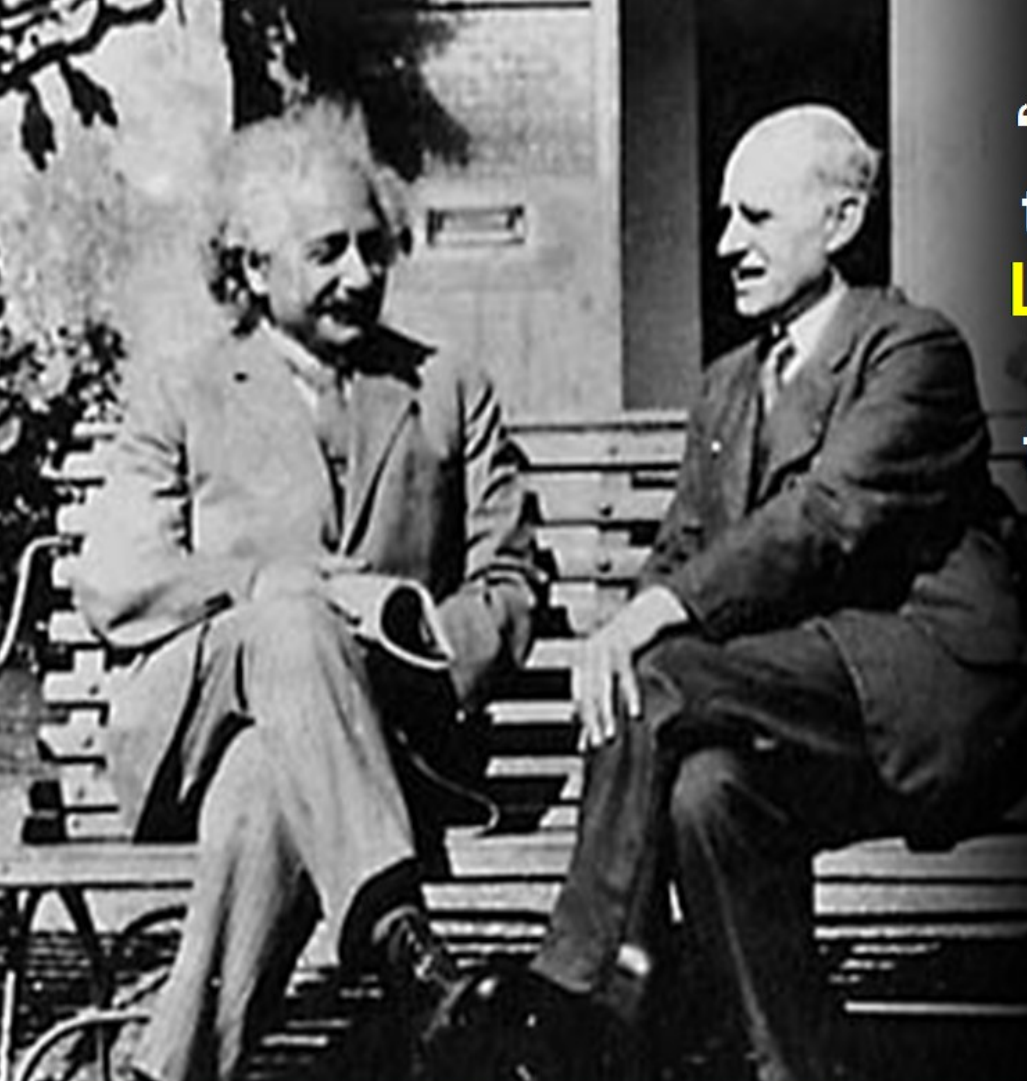
**This running down is
called
The Second Law of
Thermodynamics.**

87.5%

100%

The 2nd Law of Thermodynamics

Time	Parent → Daughter		
Start	100%	0 %	} One Half-Life One Half-Life One Half-Life
Half	50%	50%	
4th	25%	75%	
8th	12.5%	87.5%	
End	0 %	100%	



“...If your theory is found to be **against the Second Law of Thermodynamics** I can give you no hope; there is nothing for it but **to collapse in deepest humiliation.**”

Arthur Eddington,
*Einstein's Fellow Scientist &
Colleague*

Einstein's view

“[Thermodynamics is] the only physical theory of universal content ..., it will never be overthrown.”!

Who is this Einstein?

(1879–1955)

1. 1921 Nobel Prize in Physics
2. founder of modern physics
3. Theory of Relativity.
4. “the personality of the second millennium.”

50 NOBEL LAUREATES AND OTHER GREAT SCIENTISTS
WHO BELIEVE IN GOD <http://nobelists.net>

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Einstein's views

“I want to know how God created this world. ...I want to know His thoughts, the rest are details.”

(Einstein, as cited in Ronald Clark, *Einstein: The Life and Times*, London, Hodder and Stoughton Ltd., 1973, 33).

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WHO BELIEVE IN GOD <http://nobelists.net>

Einstein's views

“The deeper one penetrates into nature's secrets, the greater becomes one's respect for God.”

(Einstein, as cited in Brian 1996, 119).

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WHO BELIEVE IN GOD <http://nobelists.net>



Einstein's views

“The more I study science the more I believe in God.”

(Einstein, as cited in Holt 1997)

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WHO BELIEVE IN GOD <http://nobelists.net>

Half-Life Determination

“Probabilistic nature

...A half-life usually describes the decay of discrete entities, such as radioactive atoms.”

<https://en.wikipedia.org/wiki/Half-life>

Half-Life Determination

“it does not work to use the definition that states "half-life is the time required for exactly half of the entities to decay". “

<https://en.wikipedia.org/wiki/Half-life>

Half-Life Determination

“the half-life is defined in terms of probability: "Half-life is the time required for exactly half of the entities to decay on average". “

<https://en.wikipedia.org/wiki/Half-life>

Half-Life Determination

“In other words, the *probability* of a radioactive atom decaying within its half-life is 50%.” It’s 50/50.

<https://en.wikipedia.org/wiki/Half-life>

Half-Life Determination

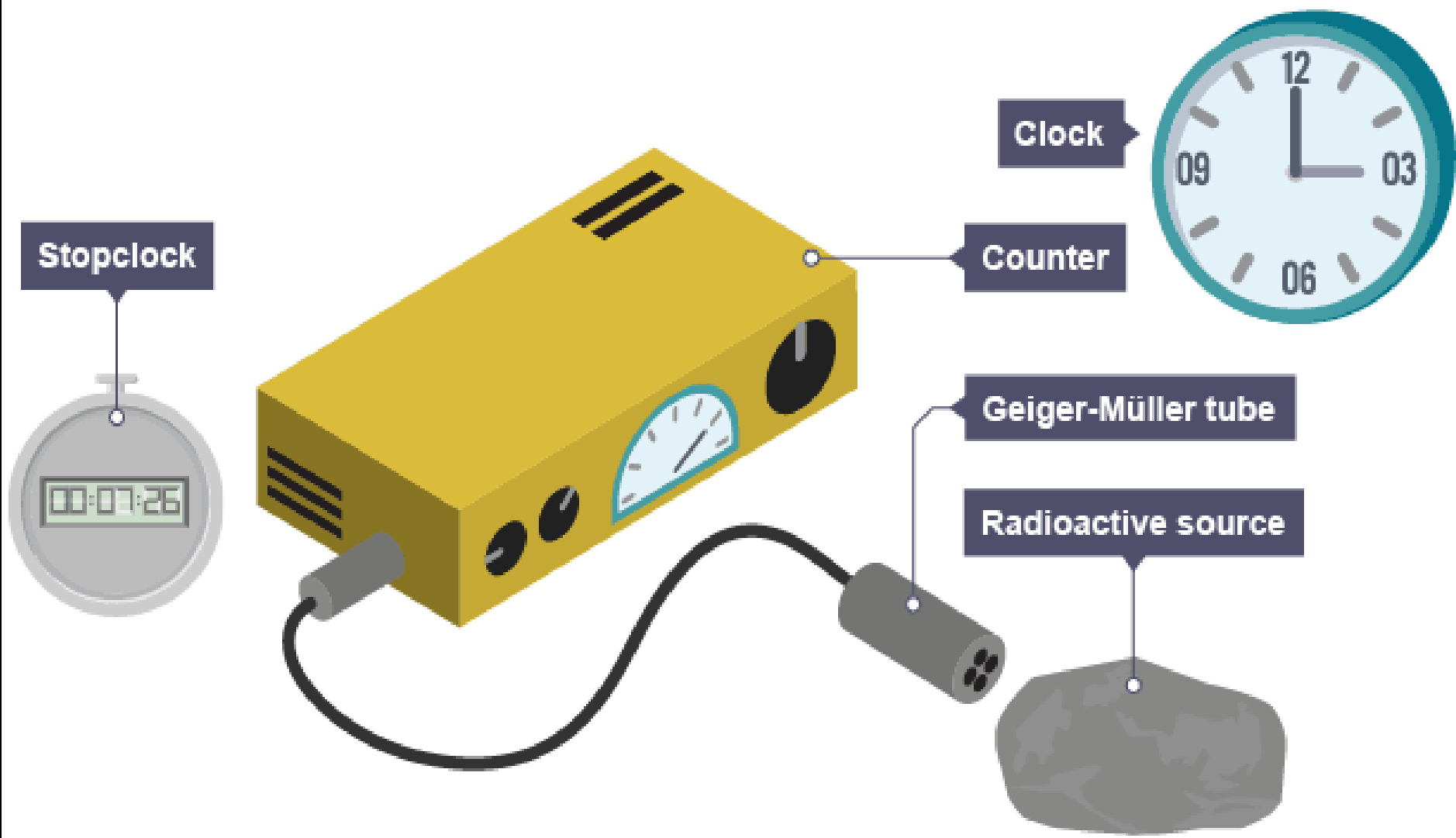
“in radioactive decay the half-life is ... usually determined experimentally.”

<https://en.wikipedia.org/wiki/Half-life>

A background image showing a hand holding a coin, likely a 1 Euro coin, with the coin held between the thumb and index finger, suspended in the air. The hand is positioned in the lower right, and the coin is in the upper center.

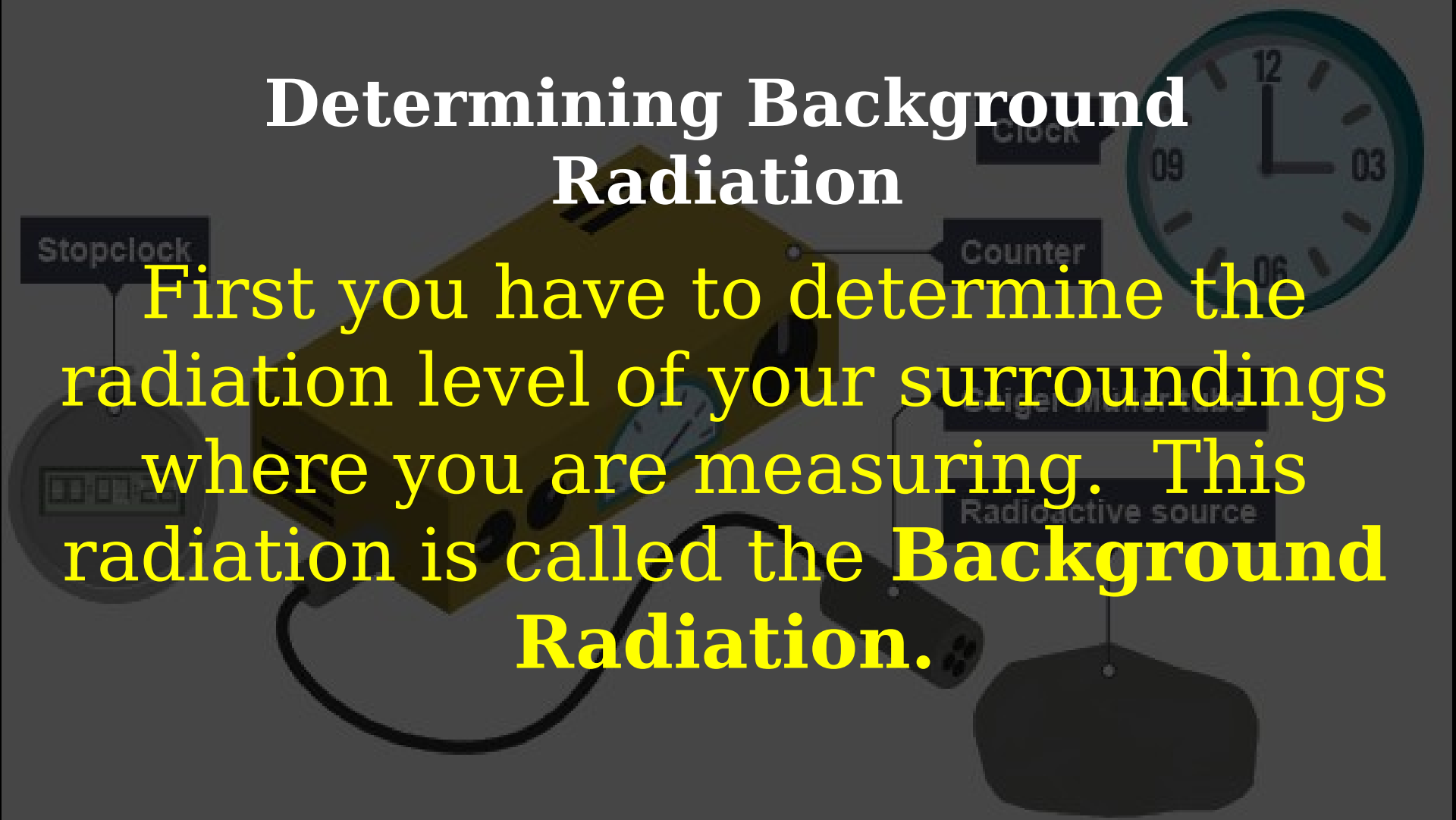
Tools required for the experiment:

- A Geiger counter and timer
- A radio active sample
- Knowing the exact number of parent and daughter atoms in the sample
- A place to do the measurements



Determining Background Radiation

First you have to determine the radiation level of your surroundings where you are measuring. This radiation is called the **Background Radiation.**



Determining Background Radiation

“Depending on your location, your elevation or altitude, and your model of Geiger counter, this background radiation level might average anywhere from 5 to 60 CPM, and while background radiation levels are random (emphasis mine), it would be unusual for those levels to exceed 100 CPM.”

<http://radiationnetwork.com/>

Your Contribution to Background Radiation

“A 154lb human body contains about 0.0164 grams of ^{40}K ; whose decay produces about 4,300 disintegrations per second (becquerel) continuously throughout the life of the body.”

<https://en.wikipedia.org/wiki/Potassium-40>

Today physicists use
radiological dating methods to
date objects.

They date two types of objects.

1. Non-biological

2. Biological



Methods used to date Non-biological items

- 1 Potassium-Argon (K-Ar)
- 2 Uranium-Lead (U-Pb)
- 3 Samarium-Neodymium (Sm-Nd)
- 4 Rubidium-Strontium (Rb-Sr)
- 5 Uranium-Thorium (U-Th)

A photograph of a dead seal lying on a sandy beach. The seal is dark grey with dark spots and is positioned horizontally in the lower half of the frame. In the background, the ocean waves are breaking onto the shore under a cloudy sky. The text "Methods used to date biological items" is overlaid in yellow with a black outline.

Methods used to date biological items

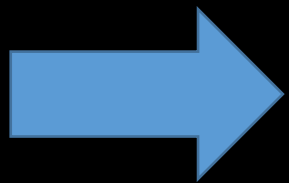
Radiocarbon dating or
 ^{14}C dating

We'll only cover non-biological
dating.

The most prominent is
Potassium-Argon
K-Ar dating



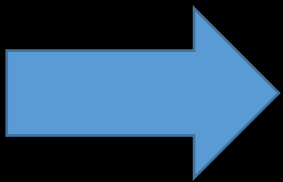
Parent



Daughter



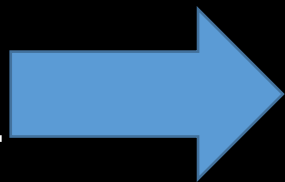
Potassium



Argon



Potassium

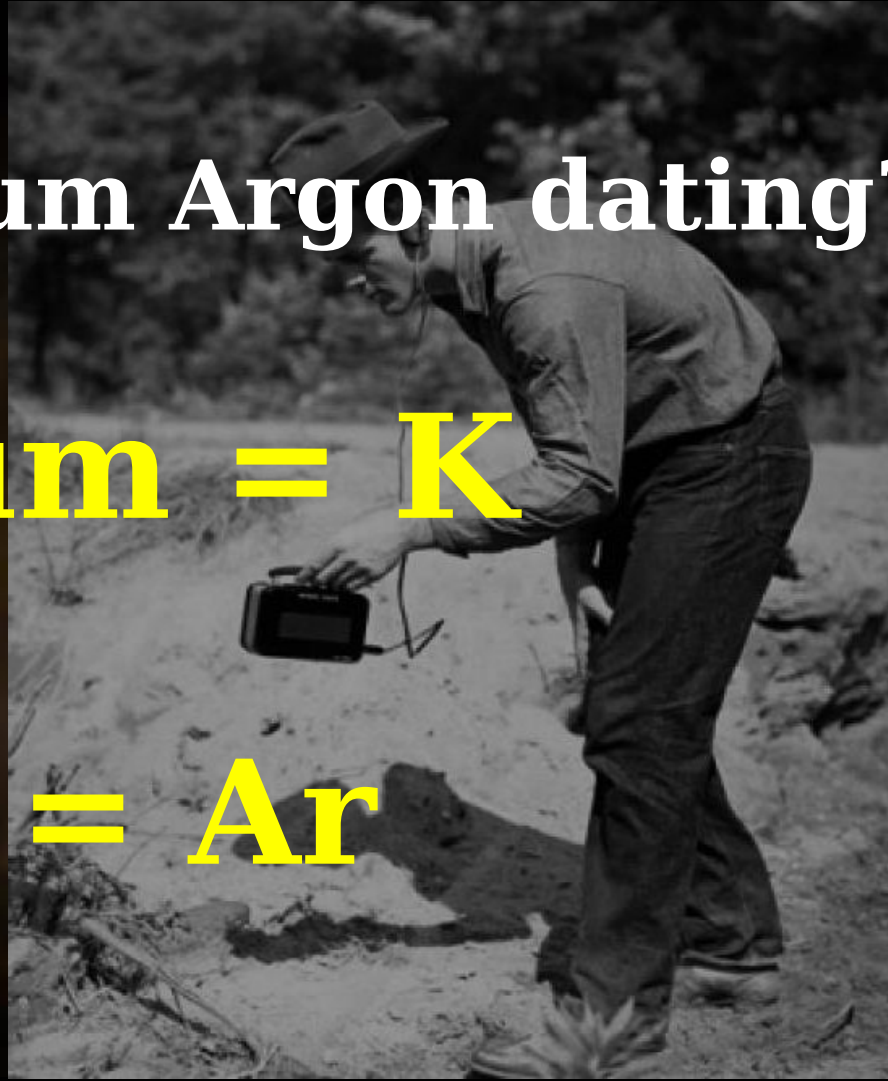


Argon

What about Potassium Argon dating?

Potassium = K

Argon = Ar



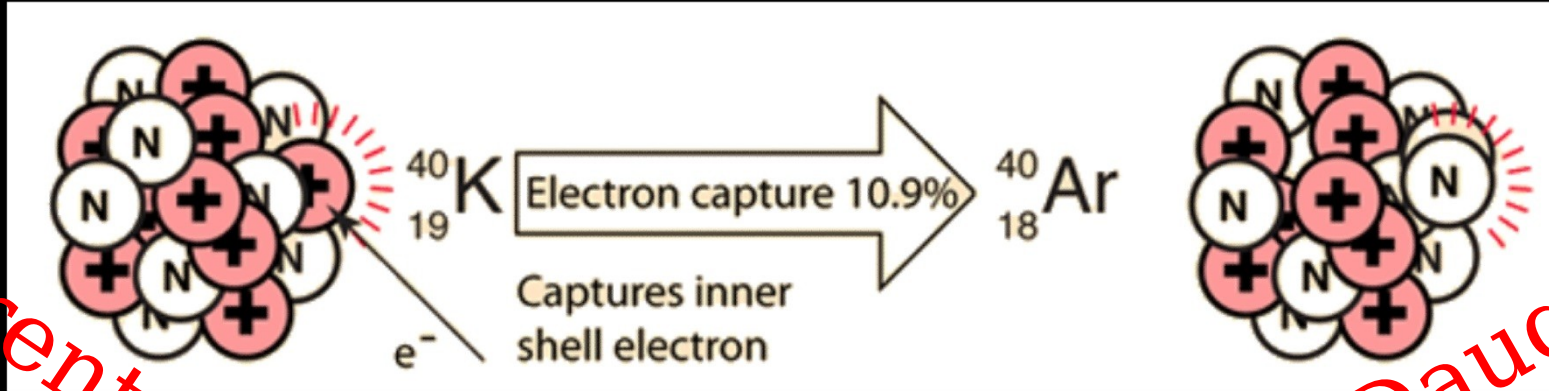
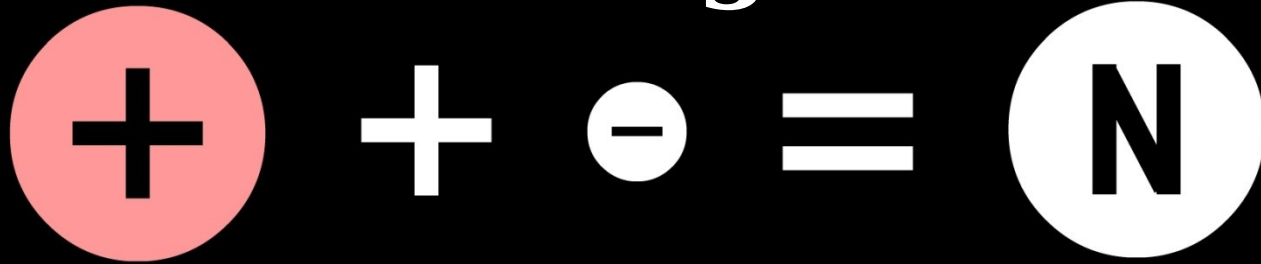
19 protons

18 protons

Periodic Table of the Elements

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Ununoctium [333]	140 Uuq Ununquadium [335]	141 Uur Ununreum [337]	142 Uus Ununseptium [339]	143 Uuo Ununoctium [341]	144 Uuq Ununquadium [343]	145 Uur Ununreum [345]	146 Uus Ununseptium [347]	147 Uuo Ununoctium [349]	148 Uuq Ununquadium [351]	149 Uur Ununreum [353]	150 Uus Ununseptium [355]	151 Uuo Ununoctium [357]	152 Uuq Ununquadium [359]	153 Uur Ununreum [361]	154 Uus Ununseptium [363]	155 Uuo Ununoctium [365]	156 Uuq Ununquadium [367]	157 Uur Ununreum [369]	158 Uus Ununseptium [371]	159 Uuo Ununoctium [373]	160 Uuq Ununquadium [375]	161 Uur Ununreum [377]	162 Uus Ununseptium [379]	163 Uuo Ununoctium [381]	164 Uuq Ununquadium [383]	165 Uur Ununreum [385]	166 Uus Ununseptium [387]	167 Uuo Ununoctium [389]	168 Uuq Ununquadium [391]	169 Uur Ununreum [393]	170 Uus Ununseptium [395]	171 Uuo Ununoctium [397]	172 Uuq Ununquadium [399]	173 Uur Ununreum [401]	174 Uus Ununseptium [403]	175 Uuo Ununoctium [405]	176 Uuq Ununquadium [407]	177 Uur Ununreum [409]	178 Uus Ununseptium [411]	179 Uuo 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Ununoctium [573]	260 Uuq Ununquadium [575]	261 Uur Ununreum [577]	262 Uus Ununseptium [579]	263 Uuo Ununoctium [581]	264 Uuq Ununquadium [583]	265 Uur Ununreum [585]	266 Uus Ununseptium [587]	267 Uuo Ununoctium [589]	268 Uuq Ununquadium [591]	269 Uur Ununreum [593]	270 Uus Ununseptium [595]	271 Uuo Ununoctium [597]	272 Uuq Ununquadium [599]	273 Uur Ununreum [601]	274 Uus Ununseptium [603]	275 Uuo Ununoctium [605]	276 Uuq Ununquadium [607]	277 Uur Ununreum [609]	278 Uus Ununseptium [611]	279 Uuo Ununoctium [613]	280 Uuq Ununquadium [615]	281 Uur Ununreum [617]	282 Uus Ununseptium [619]	283 Uuo Ununoctium [621]	284 Uuq Ununquadium [623]	285 Uur Ununreum [625]	286 Uus Ununseptium [627]	287 Uuo Ununoctium [629]	288 Uuq Ununquadium [631]	289 Uur Ununreum [633]	290 Uus Ununseptium [635]	291 Uuo Ununoctium [637]	292 Uuq Ununquadium [639]	293 Uur Ununreum [641]	294 Uus Ununseptium [643]	295 Uuo Ununoctium [645]	296 Uuq Ununquadium [647]	297 Uur Ununreum [649]	298 Uus Ununseptium [651]	299 Uuo Ununoctium [653]	300 Uuq Ununquadium [655]	301 Uur Ununreum [657]	302 Uus Ununseptium [659]	303 Uuo Ununoctium [661]	304 Uuq Ununquadium [663]	305 Uur Ununreum [665]	306 Uus Ununseptium [667]	307 Uuo Ununoctium [669]	308 Uuq Ununquadium [671]	309 Uur Ununreum [673]	310 Uus Ununseptium [675]	311 Uuo Ununoctium [677]	312 Uuq Ununquadium [679]	313 Uur Ununreum [681]	314 Uus Ununseptium [683]	315 Uuo Ununoctium [685]	316 Uuq Ununquadium [687]	317 Uur Ununreum [689]	318 Uus Ununseptium [691]	319 Uuo Ununoctium [693]	320 Uuq Ununquadium [695]	321 Uur Ununreum [697]	322 Uus Ununseptium [699]	323 Uuo Ununoctium [701]	324 Uuq Ununquadium [703]	325 Uur Ununreum [705]	326 Uus Ununseptium [707]	327 Uuo Ununoctium [709]	328 Uuq Ununquadium [711]	329 Uur Ununreum [713]	330 Uus Ununseptium [715]	331 Uuo Ununoctium [717]	332 Uuq Ununquadium [719]	333 Uur Ununreum [721]	334 Uus Ununseptium [723]	335 Uuo Ununoctium [725]	336 Uuq Ununquadium [727]	337 Uur Ununreum [729]	338 Uus Ununseptium [731]	339 Uuo Ununoctium [733]	340 Uuq Ununquadium [735]	341 Uur Ununreum [737]	342 Uus Ununseptium [739]	343 Uuo Ununoctium [741]	344 Uuq Ununquadium [743]	345 Uur Ununreum [745]	346 Uus Ununseptium [747]	347 Uuo Ununoctium [749]	348 Uuq Ununquadium [751]	349 Uur Ununreum [753]	350 Uus Ununseptium [755]	351 Uuo Ununoctium [757]	352 Uuq Ununquadium [759]	353 Uur Ununreum [761]	354 Uus Ununseptium [763]	355 Uuo Ununoctium [765]	356 Uuq Ununquadium [767]	357 Uur Ununreum [769]	358 Uus Ununseptium [771]	359 Uuo Ununoctium [773]	360 Uuq Ununquadium [775]	361 Uur Ununreum [777]	362 Uus Ununseptium [779]	363 Uuo Ununoctium [781]	364 Uuq Ununquadium [783]	365 Uur Ununreum [785]	366 Uus Ununseptium [787]	367 Uuo Ununoctium [789]	368 Uuq Ununquadium [791]	369 Uur Ununreum [793]	370 Uus Ununseptium [795]	371 Uuo Ununoctium [797]	372 Uuq Ununquadium [799]	373 Uur Ununreum [801]	374 Uus Ununseptium [803]	375 Uuo Ununoctium [805]	376 Uuq Ununquadium [807]	377 Uur Ununreum [809]	378 Uus Ununseptium [811]	379 Uuo Ununoctium [813]	380 Uuq Ununquadium [815]	381 Uur Ununreum [817]	382 Uus Ununseptium [819]	383 Uuo Ununoctium [821]	384 Uuq Ununquadium [823]	385 Uur Ununreum [825]	386 Uus Ununseptium [827]	387 Uuo Ununoctium [829]	388 Uuq Ununquadium [831]	389 Uur Ununreum [833]	390 Uus Ununseptium [835]	391 Uuo Ununoctium [837]	392 Uuq Ununquadium [839]	393 Uur Ununreum [841]	394 Uus Ununseptium [843]	395 Uuo Ununoctium [845]	396 Uuq Ununquadium [847]	397 Uur Ununreum [849]	398 Uus Ununseptium [851]	399 Uuo Ununoctium [853]	400 Uuq Ununquadium [855]	401 Uur Ununreum [857]	402 Uus Ununseptium [859]	403 Uuo Ununoctium [861]	404 Uuq Ununquadium [863]	405 Uur Ununreum [865]	406 Uus Ununseptium [867]	407 Uuo Ununoctium [869]	408 Uuq Ununquadium [871]	409 Uur Ununreum [873]	410 Uus Ununseptium [875]	411 Uuo Ununoctium [877]	412 Uuq Ununquadium [879]	413 Uur Ununreum [881]	414 Uus Ununseptium [883]	415 Uuo Ununoctium [885]	416 Uuq Ununquadium [887]	417 Uur Ununreum [889]	418 Uus Ununseptium [891]	419 Uuo Ununoctium [893]	420 Uuq Ununquadium [895]	421 Uur Ununreum [897]	422 Uus Ununseptium [899]	423 Uuo Ununoctium [901]	424 Uuq Ununquadium [903]	425 Uur Ununreum [905]	426 Uus Ununseptium [907]	427 Uuo Ununoctium [909]	428 Uuq Ununquadium [911]	429 Uur Ununreum [913]	430 Uus Ununseptium [915]	431 Uuo Ununoctium [917]	432 Uuq Ununquadium [919]	433 Uur Ununreum [921]	434 Uus Ununseptium [923]	435 Uuo Ununoctium [925]	436 Uuq Ununquadium [927]	437 Uur Ununreum [929]	438 Uus Ununseptium [931]	439 Uuo Ununoctium [933]	440 Uuq Ununquadium [935]	441 Uur Ununreum [937]	442 Uus Ununseptium [939]	443 Uuo Ununoctium [941]	444 Uuq Ununquadium [943]	445 Uur Ununreum [945]	446 Uus Ununseptium [947]	447 Uuo Ununoctium [949]	448 Uuq Ununquadium [951]	449 Uur Ununreum [953]	450 Uus Ununseptium [955]	451 Uuo Ununoctium [957]	452 Uuq Ununquadium [959]	453 Uur Ununreum [961]	454 Uus Ununseptium [963]	455 Uuo Ununoctium [965]	456 Uuq Ununquadium [967]	457 Uur Ununreum [969]	458 Uus Ununseptium [971]	459 Uuo Ununoctium [973]	460 Uuq Ununquadium [975]	461 Uur Ununreum [977]	462 Uus Ununseptium [979]	463 Uuo Ununoctium [981]	464 Uuq Ununquadium [983]	465 Uur Ununreum [985]	466 Uus Ununseptium [987]	467 Uuo Ununoctium [989]	468 Uuq Ununquadium [991]	469 Uur Ununreum [993]	470 Uus Ununseptium [995]	471 Uuo Ununoctium [997]	472 Uuq Ununquadium [999]	473 Uur Ununreum [1001]	474 Uus Ununseptium [1003]	475 Uuo Ununoctium [1005]	476 Uuq Ununquadium [1007]	477 Uur Ununreum [1009]	478 Uus Ununseptium [1011]	479 Uuo Ununoctium [1013]	480 Uuq Ununquadium [1015]	481 Uur Ununreum [1017]	482 Uus Ununseptium [1019]	483 Uuo Ununoctium [1021]	484 Uuq Ununquadium [1023]	485 Uur Ununreum [1025]	486 Uus Ununseptium [1027]	487 Uuo Ununoctium [1029]	488 Uuq Ununquadium [1031]	489 Uur Ununreum [1033]	490 Uus Ununseptium [1035]	491 Uuo Ununoctium [1037]	492 Uuq Ununquadium [1039]	493 Uur Ununreum [1041]	494 Uus Ununseptium [1043]	495 Uuo Ununoctium [1045]	496 Uuq Ununquadium [1047]	497 Uur Ununreum [1049]	498 Uus Ununseptium [1051]	499 Uuo Ununoctium [1053]	500 Uuq Ununquadium [1055]	501 Uur Ununreum [1057]	502 Uus Ununseptium [1059]	503 Uuo Ununoctium [1061]	504 Uuq Ununquadium [1063]	505 Uur Ununreum [1065]	506 Uus Ununseptium [1067]	507 Uuo

Potassium Argon Dating



Sources of electrons

Potassium's inner shell electrons

Lightning

Wind

Earthquakes

Each of these creates MORE ARGON!

Composition of the Atmosphere Today

Nitrogen = 78%

Oxygen = 21%

Argon = 1%

Water vapor = 0.4%

Carbon Dioxide = 0.04%


<https://climate.ncsu.edu/edu/Composition>

A Source of Argon?

Since the atmosphere is 1% Argon,

Would this lava pick up Argon as it flies through the air?

This creates MORE ARGON in the lava!



The greater the amount of
Argon in a sample...

**THE GREATER
THE AGE!!**

Potassium Argon Dating

The half-life of ^{40}K is
calculated to be 1.251
billion years.

Potassium-Argon Dating Method

Updated January 31, 2019 by Andrew Alden

“The potassium-argon (K-Ar) isotopic dating method is especially useful for determining the age of lavas.”

<https://www.thoughtco.com/potassium-argon-dating-methods-1440803>

Potassium-Argon Dating Method

**Searching the published papers,
Artificial Intelligence says K/Ar dating
only becomes reliable after an object
is 100,000 years old.**

**Question: How can we empirically
verify that? We can't!**

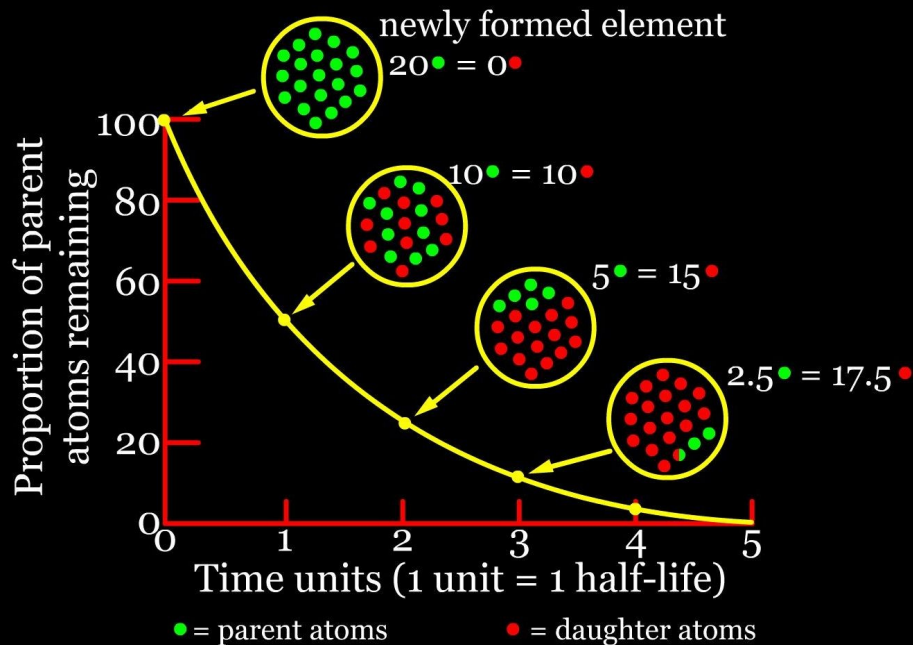
ChatGpt as of Jul 2024AD

Potassium-Argon Dating Method

“Developed in the 1950s, it was important in developing the theory of plate tectonics and in calibrating the geologic time scale.”

<https://www.thoughtco.com/potassium-argon-dating-methods-1440803>

Potassium Argon Dating

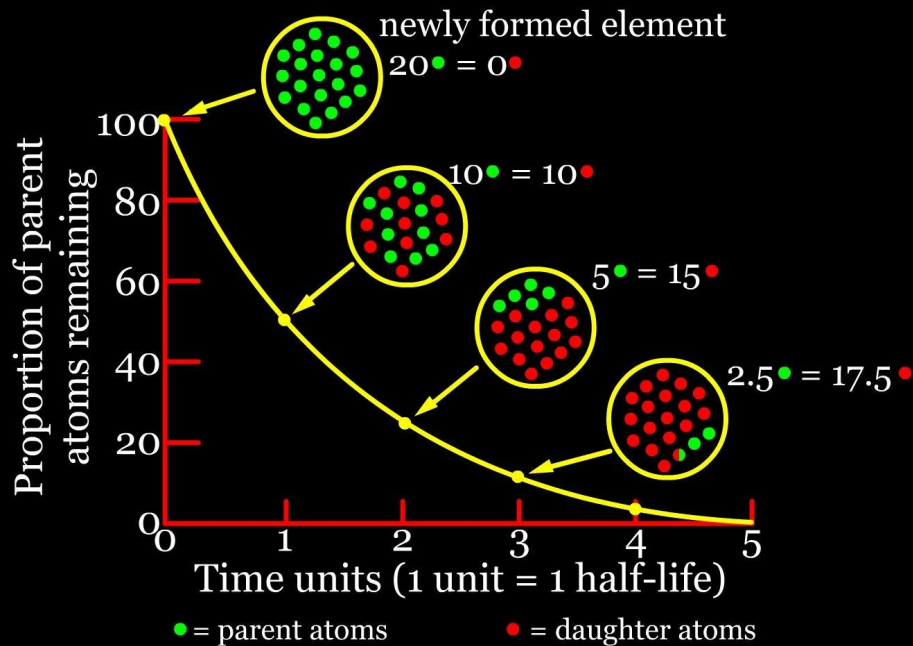


Assumption 1:

We have
calculated the
half-life
correctly
 1.251×10^9
years

<https://en.wikipedia.org/wiki/Potassium-40>

Potassium Argon Dating



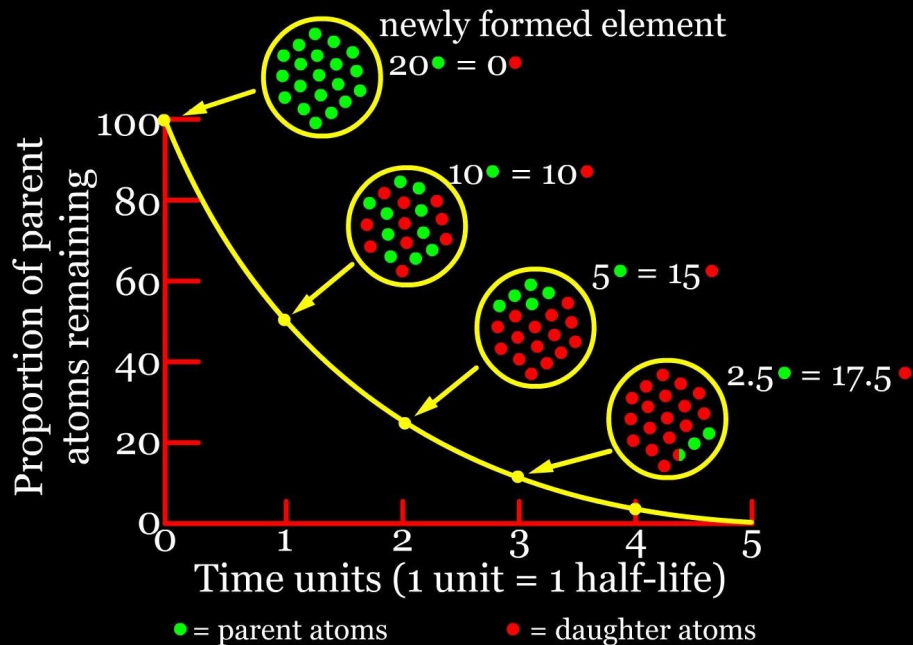
Assumption 2:

The process starts when lava solidifies.

Potassium Argon Dating

Assumption 3:

The exact starting ratio of the parent and daughter elements are known.



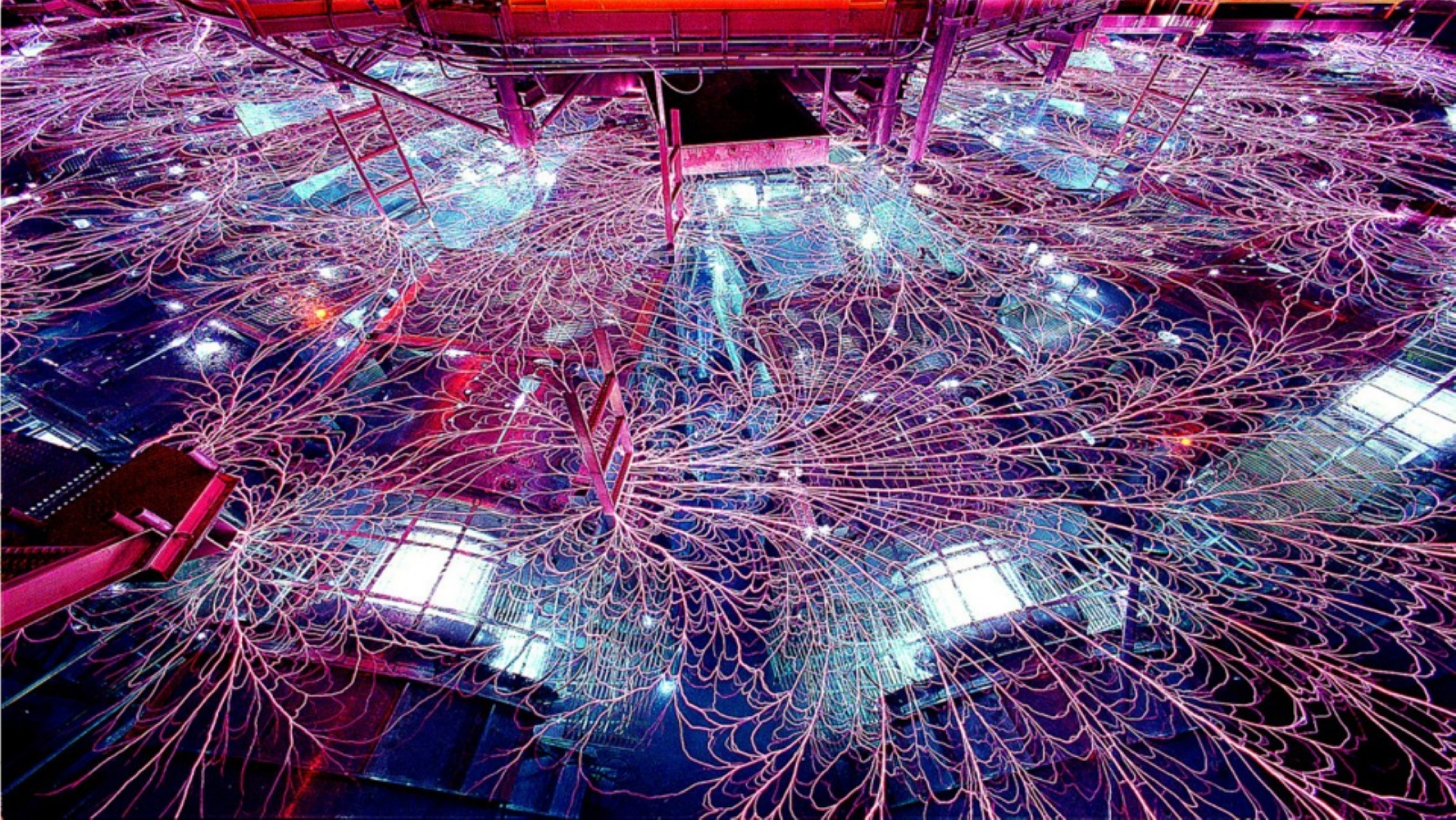
Potassium Argon Dating



Assumption 3:

The exact starting ratio of the parent and daughter elements are known.

1/0





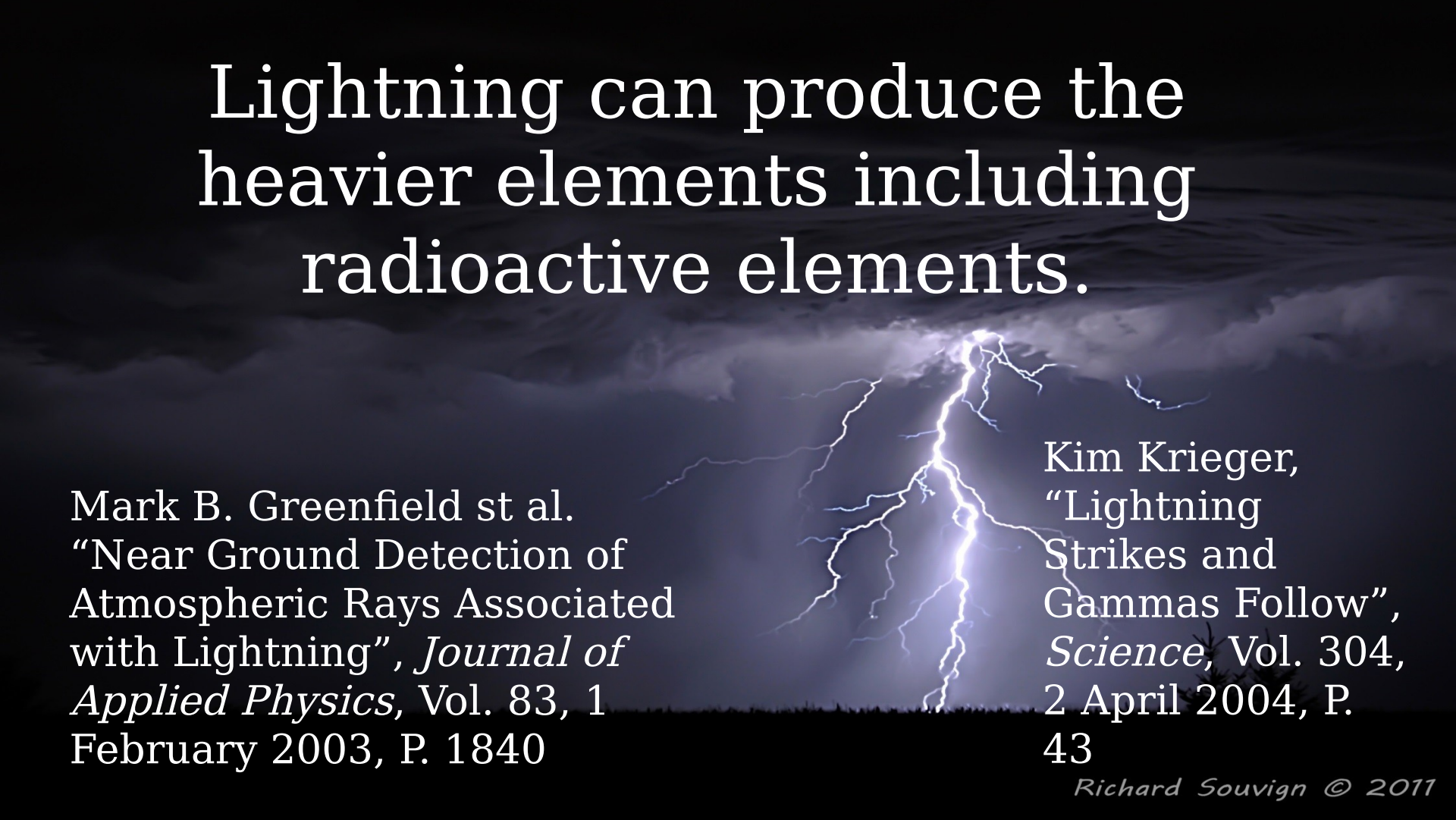
The Sandia Z-pinch
machine can create all
elements,

so can

Lightning and Earthquakes

<http://www.sandia.gov/z-machine/>

Lightning can produce the heavier elements including radioactive elements.



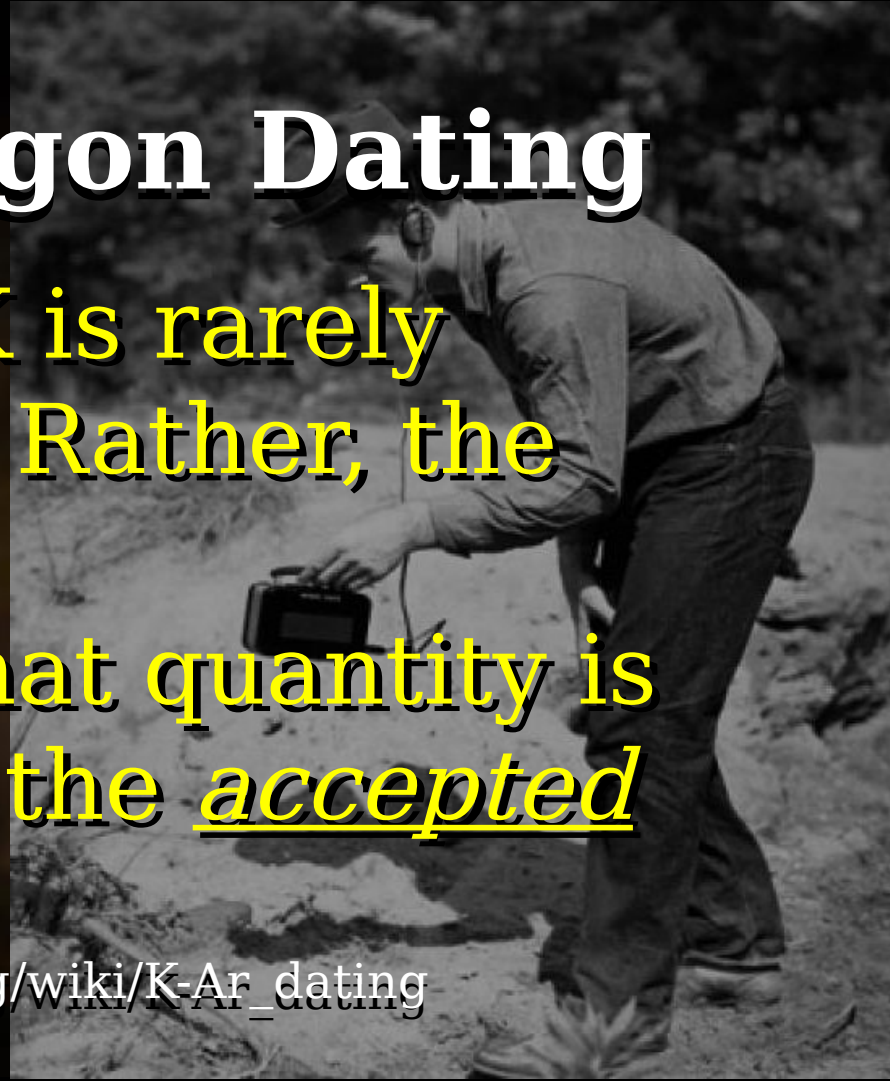
Mark B. Greenfield et al.
“Near Ground Detection of
Atmospheric Rays Associated
with Lightning”, *Journal of
Applied Physics*, Vol. 83, 1
February 2003, P. 1840

Kim Krieger,
“Lightning
Strikes and
Gammas Follow”,
Science, Vol. 304,
2 April 2004, P.
43

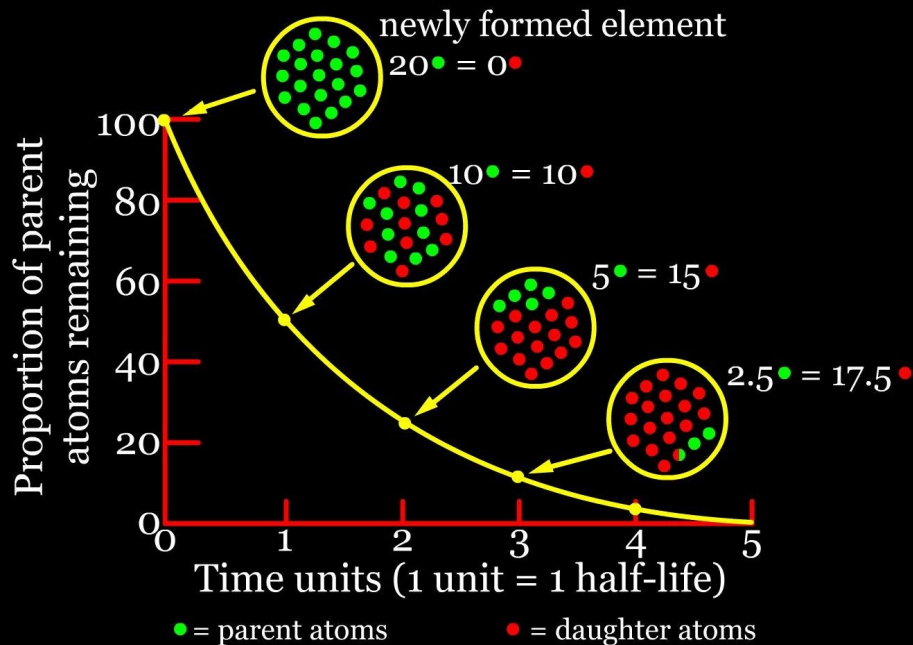
Potassium Argon Dating

“The amount of ^{40}K is rarely measured directly. Rather, the more common ^{39}K is measured and that quantity is then multiplied by the accepted ratio of

$^{40}\text{K}/^{39}\text{K}$ (i.e., https://en.wikipedia.org/wiki/K-Ar_dating)



Potassium Argon Dating



Assumption 4:

Molten lava
will contain
NO Argon
because
Argon is a

Molten lava will
contain NO Argon
because Argon is a
gas?



Water will contain
NO Oxygen because
Oxygen is a gas?

Oxygen is half the
size of Argon!



How do fish breath underwater?

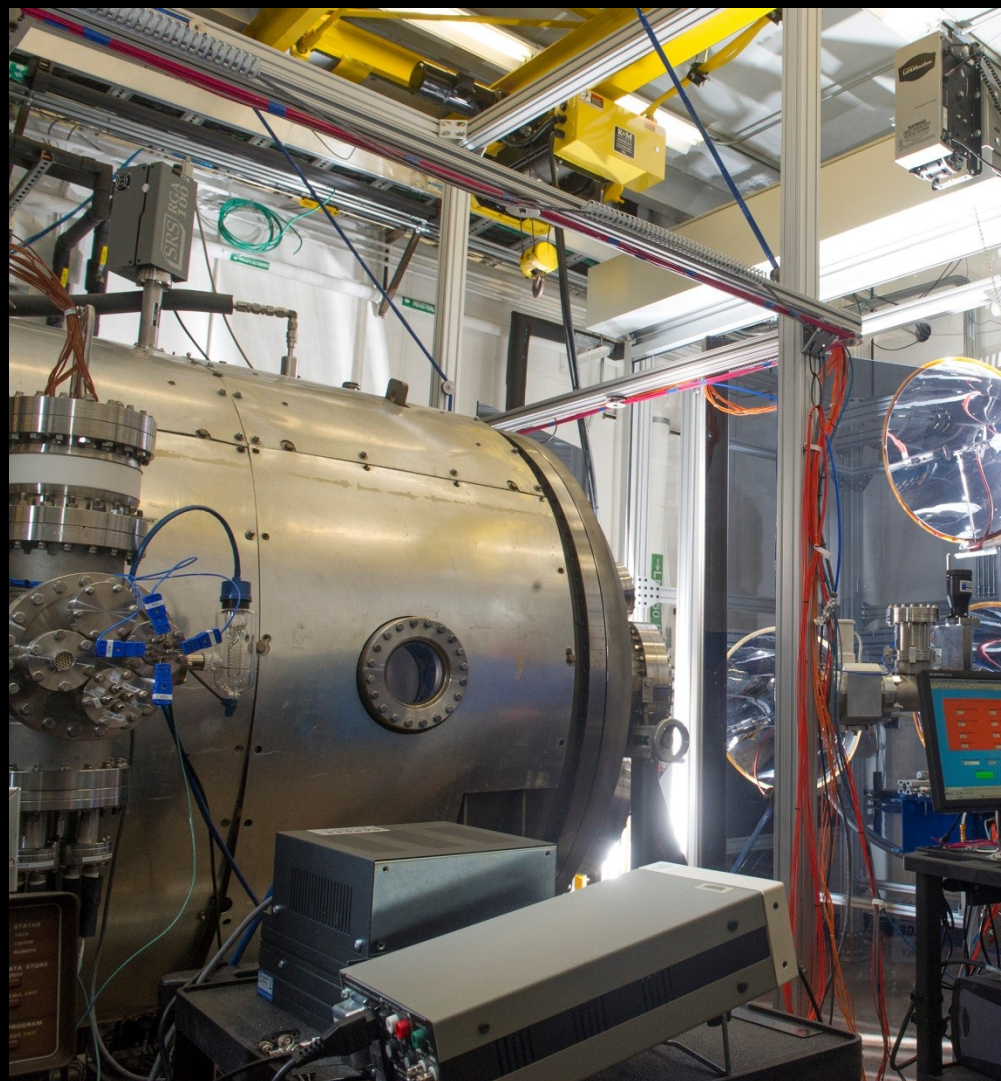


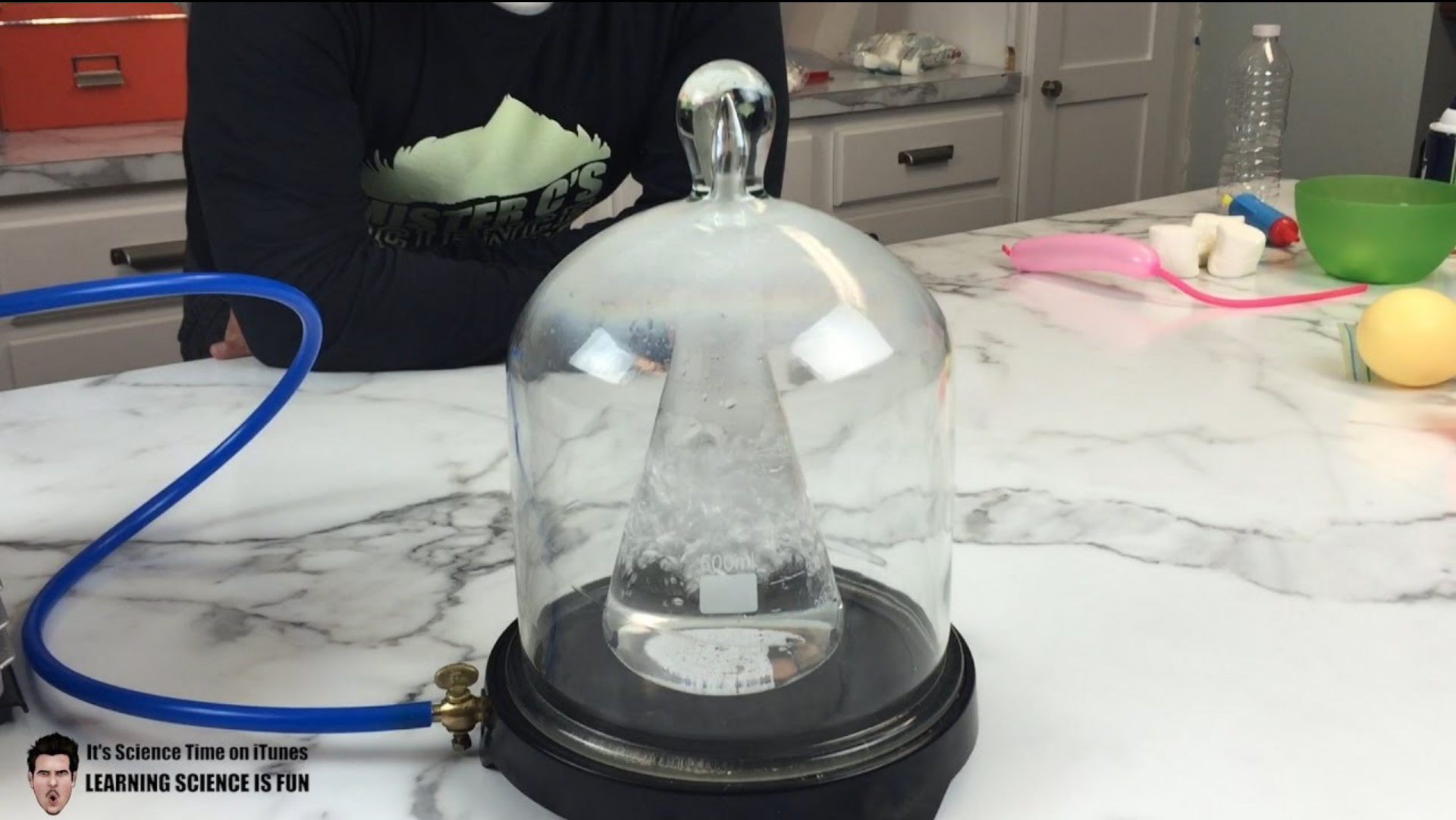


The University of Houston
Cosmic Ray Physics Group

One of the
environmental
test
chambers.

- Thermal
- Vibration
- Vacuum





It's Science Time on iTunes
LEARNING SCIENCE IS FUN

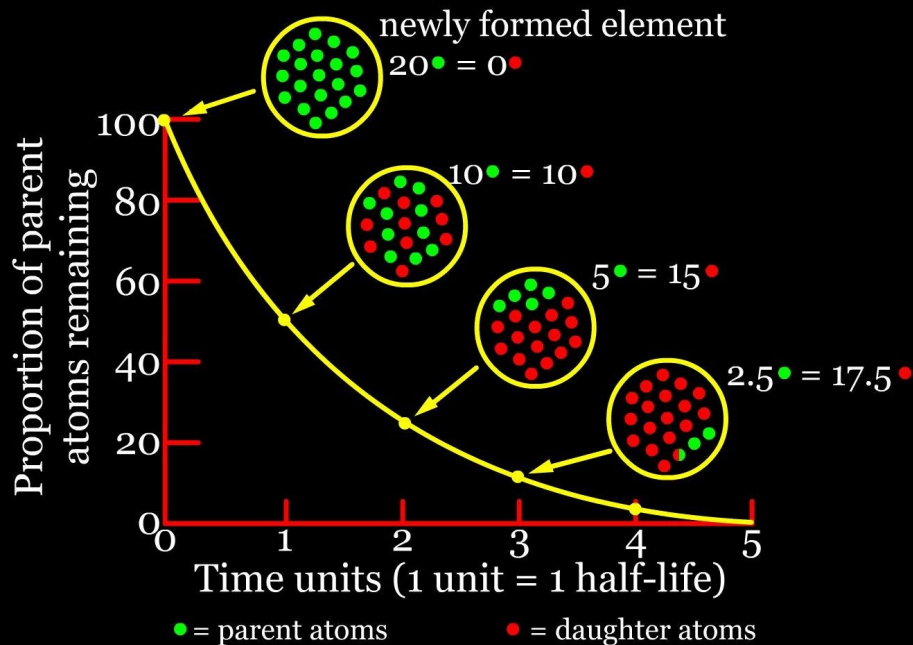


Remember the atmosphere today
is 1% Argon?



**The more Argon there is in the
lava,
the older the sample will appear.**

Potassium Argon Dating



Assumption 5:

No Potassium
has leached
out of the
sample.

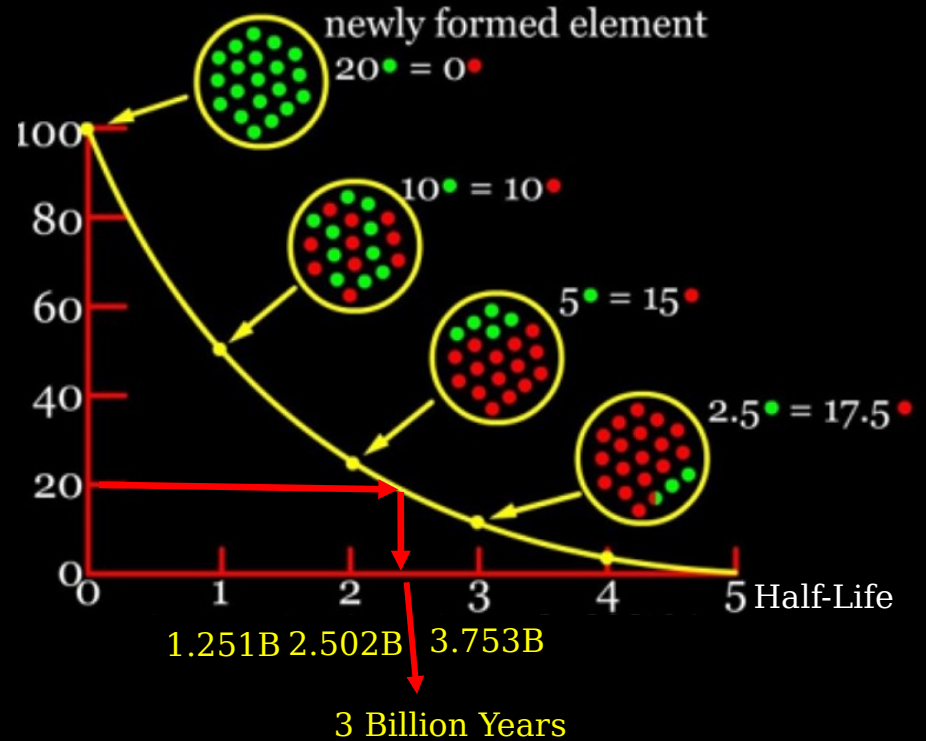


**“As much as 80%
of the potassium
in a small sample
of an iron
meteorite can be
removed by
distilled water in
4 1/2 hours”**

Rancitelli, L.A., and D.E. Fischer, “Potassium-Argon Age of Iron Meteorites,” *Planetary Sciences Abstracts*, 48th Annual Meeting, p. 167

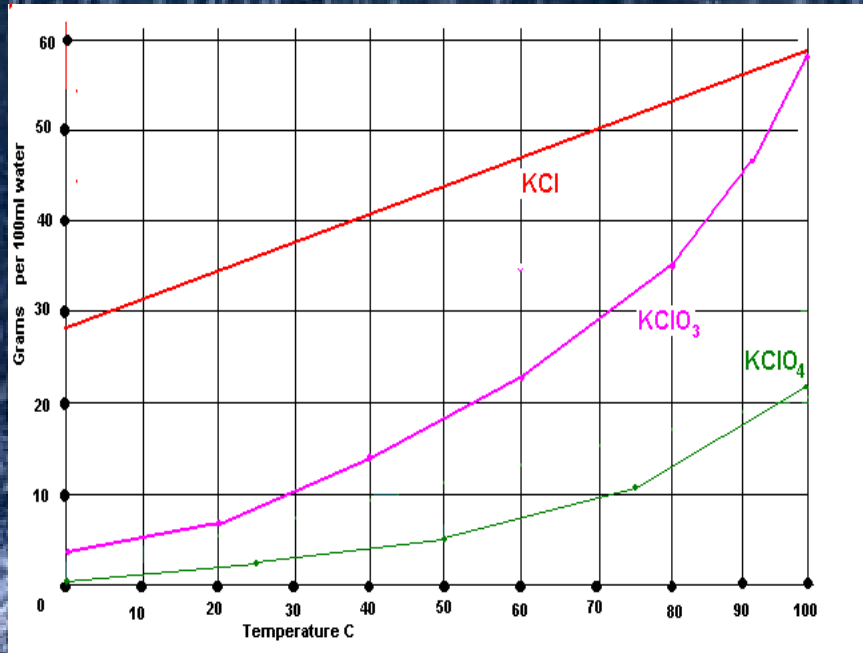


80% Reduction in Potassium



In 4 1/2 hours we have increased the age by 3 billion years

Solubility of Potassium

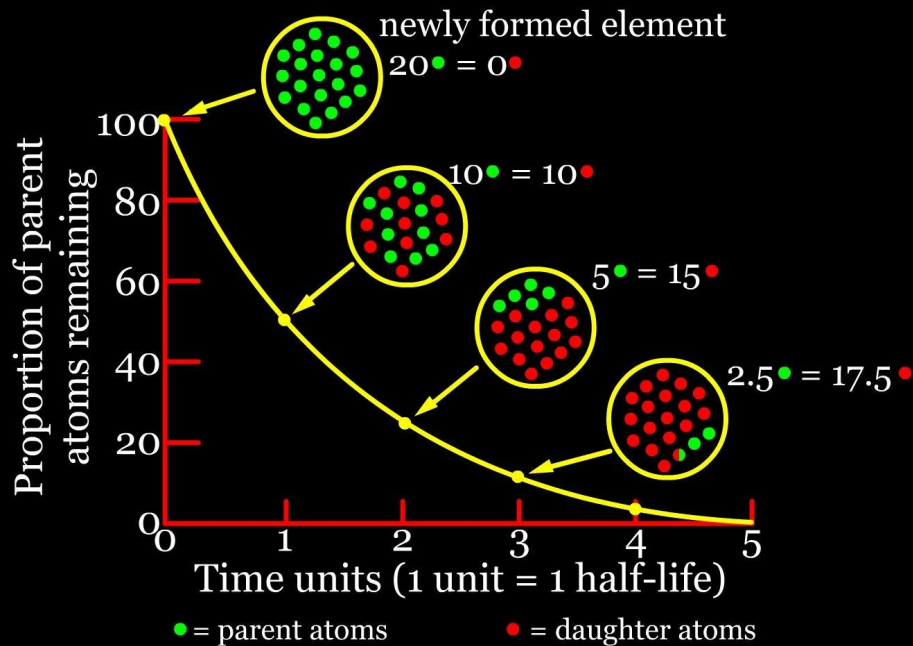


Because there is a curve for K, any exposure to water will give an older K-Ar date.

**The more the
Potassium is
leached out of
a sample the
older the
sample will
appear.**

**How often did
it rain on the
rocks?**

Potassium Argon Dating



Assumption 6:

There has
been no
outside
contamination.
n.

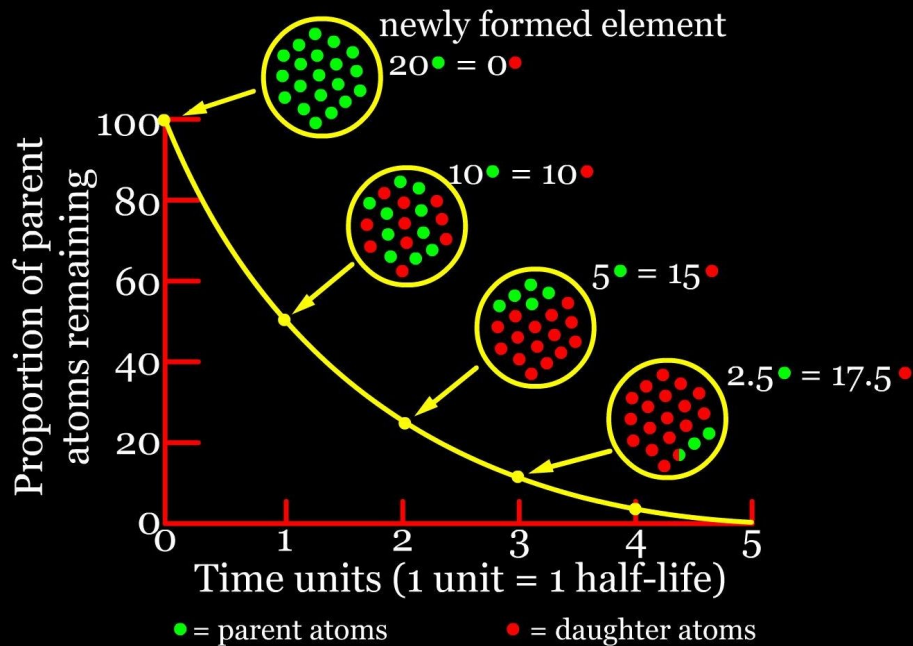
Potassium Argon Dating

The image is a composite of two photographs. The left half shows a person in a full-body yellow protective suit with a hood and a respirator mask, holding a yellow container. The right half shows a person in a grey long-sleeved shirt and dark pants, bent over and using a handheld electronic device on the ground.

What if there was a world
wide flood?

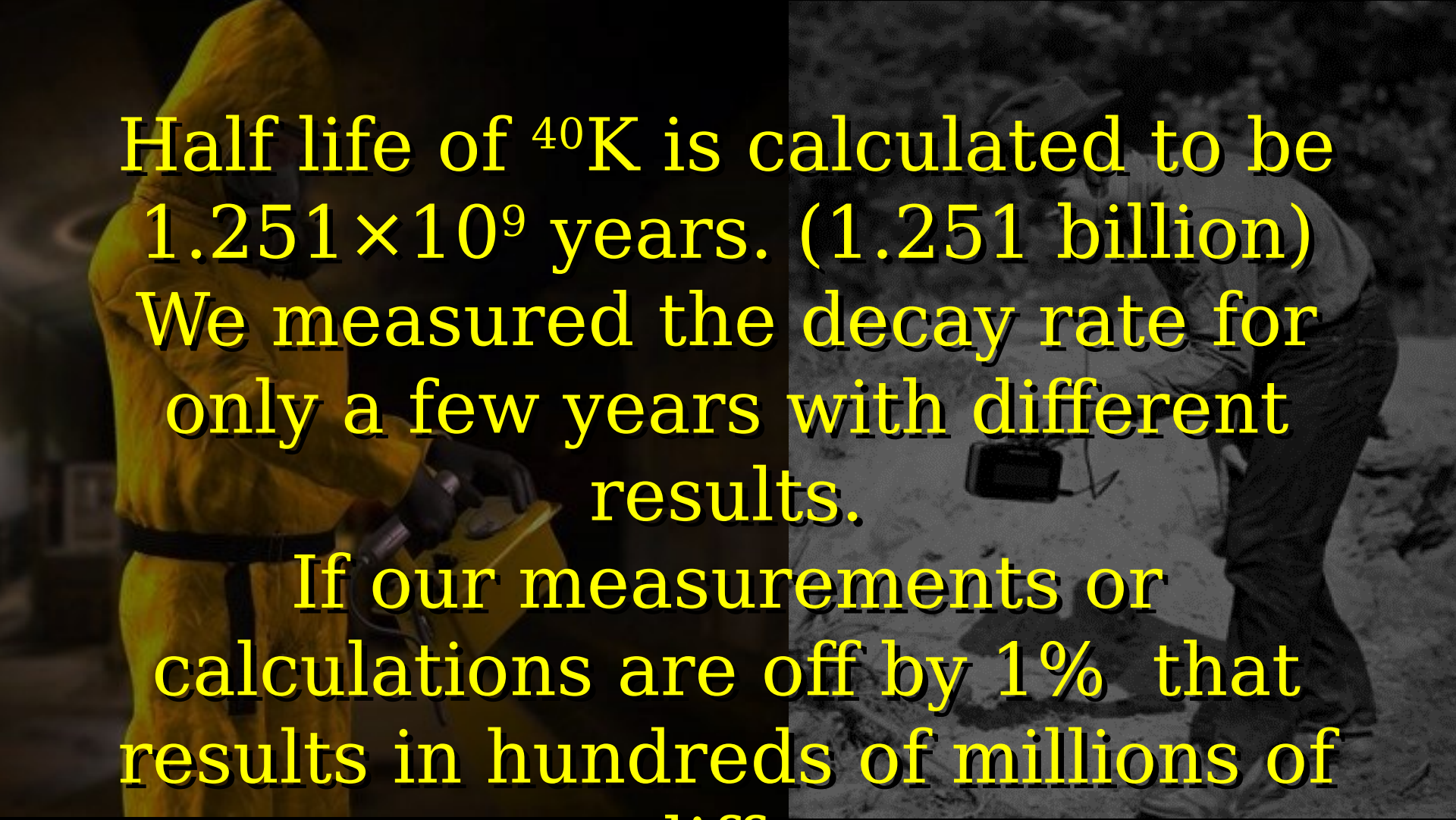
Everything would be
contaminated!

Potassium Argon Dating



Assumption 7:

We know the
decay rate of
Potassium.



Half life of ^{40}K is calculated to be 1.251×10^9 years. (1.251 billion)
We measured the decay rate for only a few years with different results.

If our measurements or calculations are off by 1% that results in hundreds of millions of

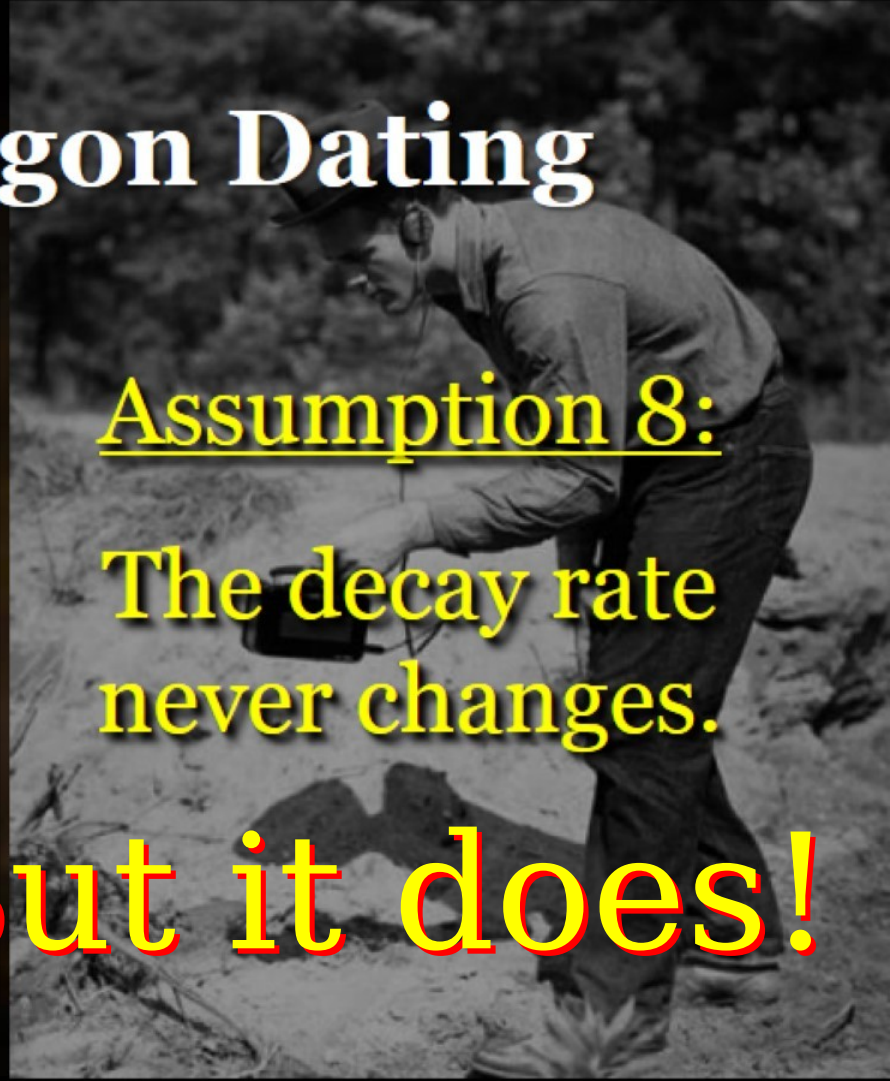
Potassium Argon Dating



Assumption 8:

The decay rate
never changes.

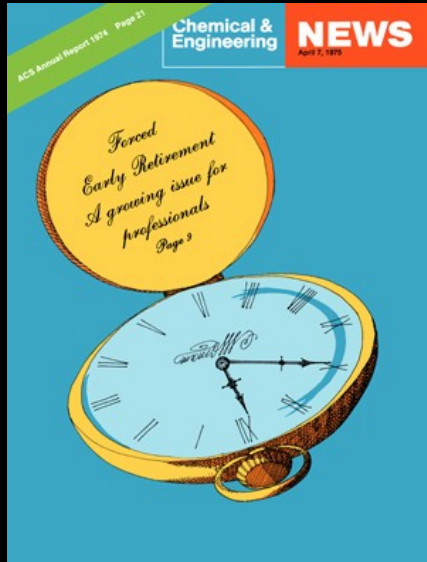
But it does!





Don't tell me the decay
rates change.

Radioactivity re-examined



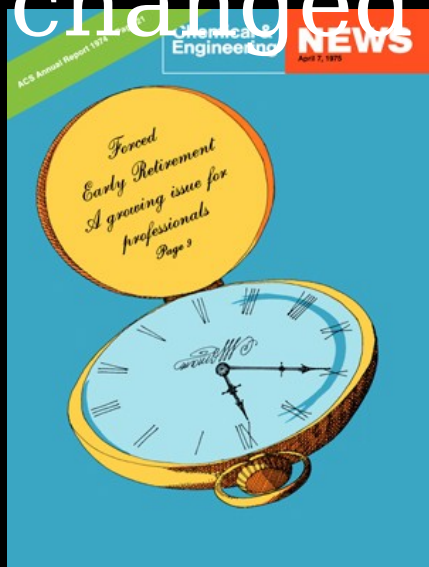
“radioactive decay rate ...
equations resulted
initially from studies done
with crude instruments
some 70 117 years ago.

Bluntly, they are
incorrect”

Chemical Engineering News 1975, 53, 14, 2 Publication Date:
April 7, 1975

<https://pubs.acs.org/doi/abs/10.1021/cen-v053n014.p002>

Radioactive decay rates can be changed by: “pressure, temperature, electric and magnetic fields, stress in monomolecular layers, changes in energy state of orbital electrons,



Chemical Engineering News 1975, 53, 14, 2 Publication Date:
April 7, 1975

<https://pubs.acs.org/doi/abs/10.1021/cen-v053n014.p002>

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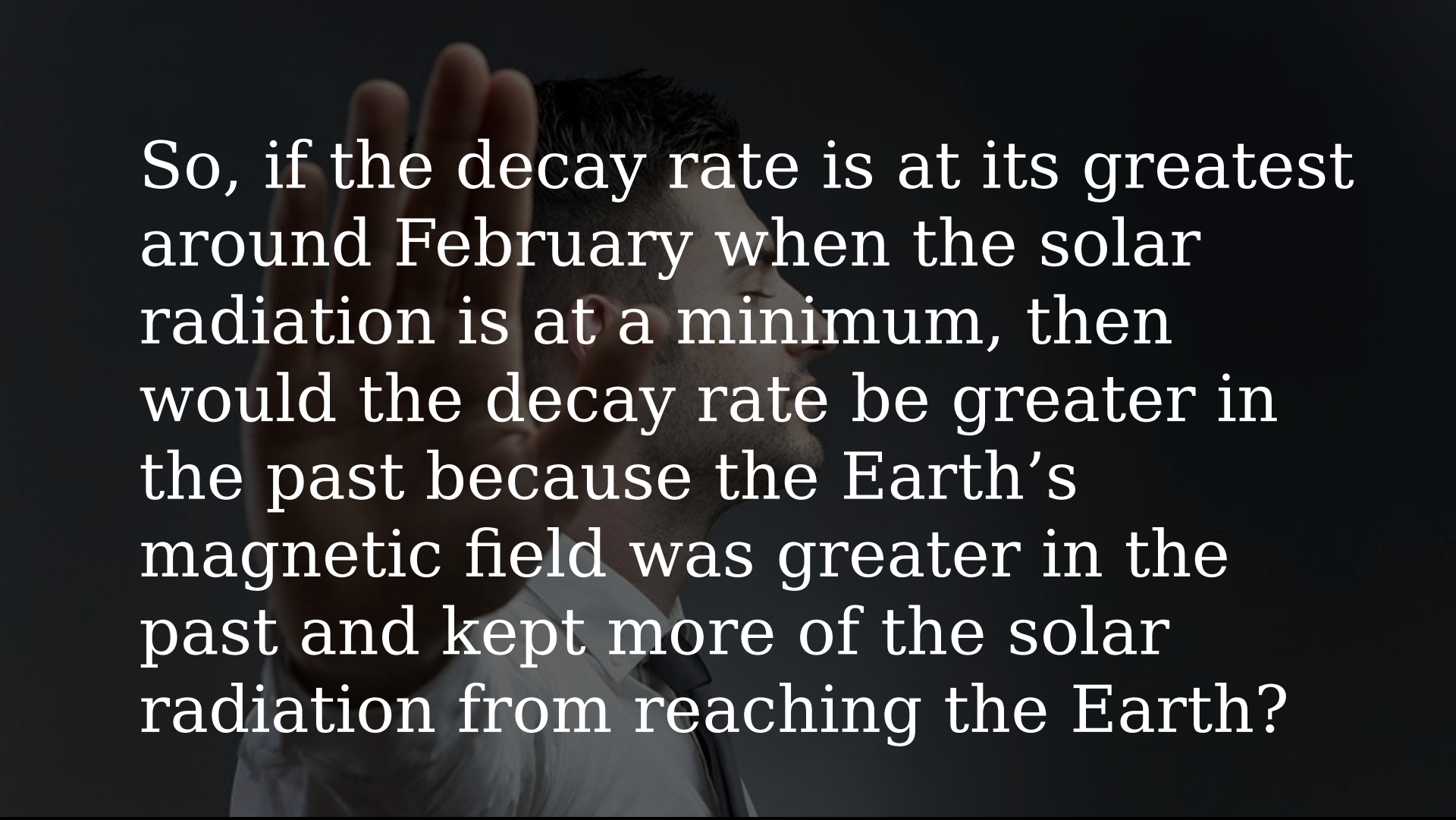
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 Search

In 2009 *New Scientist* reported that radiometric decay varies based on the solar cycle. “Each year, the decay rate is at its greatest around February and reaches a minimum in August.”

<https://www.newscientist.com/article/mg20227141-400-solar-ghosts-may-haunt-earths-radioactive-atoms/>



So, if the decay rate is at its greatest around February when the solar radiation is at a minimum, then would the decay rate be greater in the past because the Earth's magnetic field was greater in the past and kept more of the solar radiation from reaching the Earth?

How to Accelerate Radiometric Deca

U.S. Patent # 5,076,971

METHOD FOR ENHANCING ALPHA DECAY IN RADIOACTIVE MATERIALS

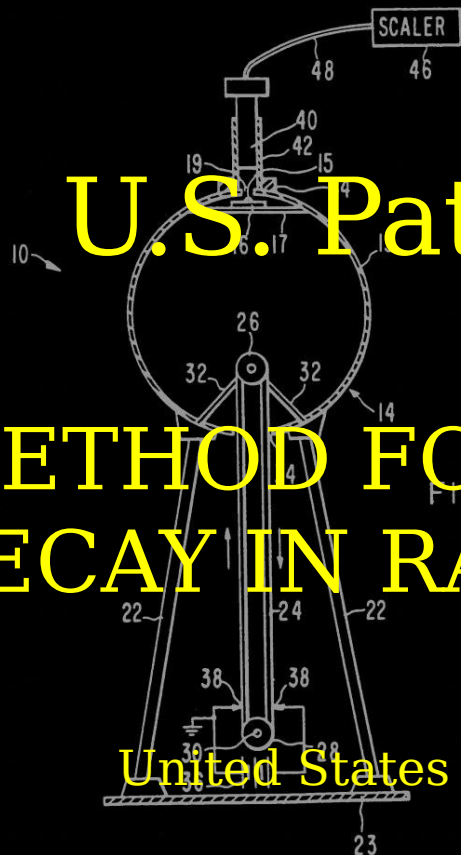


FIG. 1

FIG. 2

IN λ/λ_0

110
100
90
80
70
60
50
40
30
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
-90
-100
-110

 Φ (kV)IN λ/λ_0 VERSUS Φ

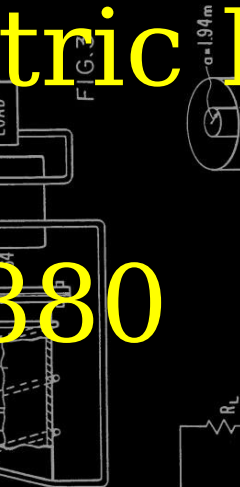
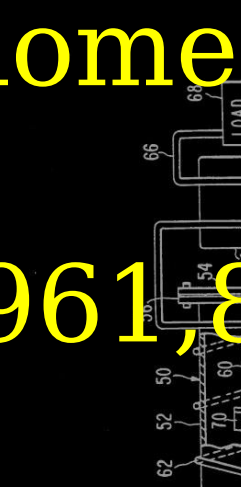
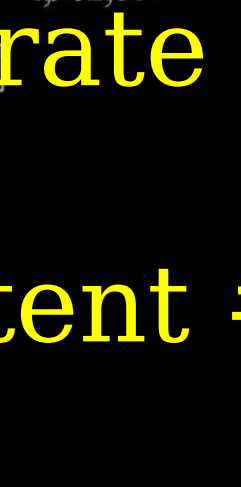
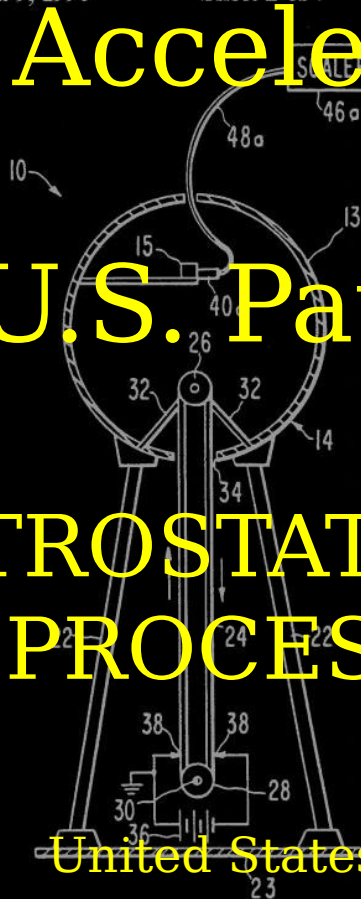
United States Patent # 5,076,971 Dec. 31, 1991

How to Accelerate Radiometric Deca

U.S. Patent # 4,961,880

ELECTROSTATIC VOLTAGE EXCITATION PROCESS AND APPARATUS

United States Patent # 4,961,880 Oct. 9, 1990



Wow! I didn't know that.



Assumptions:

1. We have calculated the half-life correctly
2. Process starts when lava hardens.
3. The Exact ratios of parent and daughter elements are known at the start.
4. Molten lava contains NO Argon (Ar) gas.
5. No Potassium (K) has leached out.
6. There has been NO outside contamination.
7. The decay rate of Potassium (K) is known.
8. The decay rate never changes.

Potassium-Argon Dating





Lava from the 1801 Hawaiian volcano eruption gave a K-Ar date of **1.6 Million years old.**

Funkhouser and Naughton, Journal of Geophysical Research, vol. 73, July 15, 1968, p. 4601.

Dalrymple, G.B., 1969 $^{40}\text{Ar}/^{36}\text{Ar}$ analysis of historic lava flows. *Earth and Planetary Science Letters*, 6-47 55.

See also: ICR *Impact* #307 Jan. 1999

Mount Kilauea Hawaii

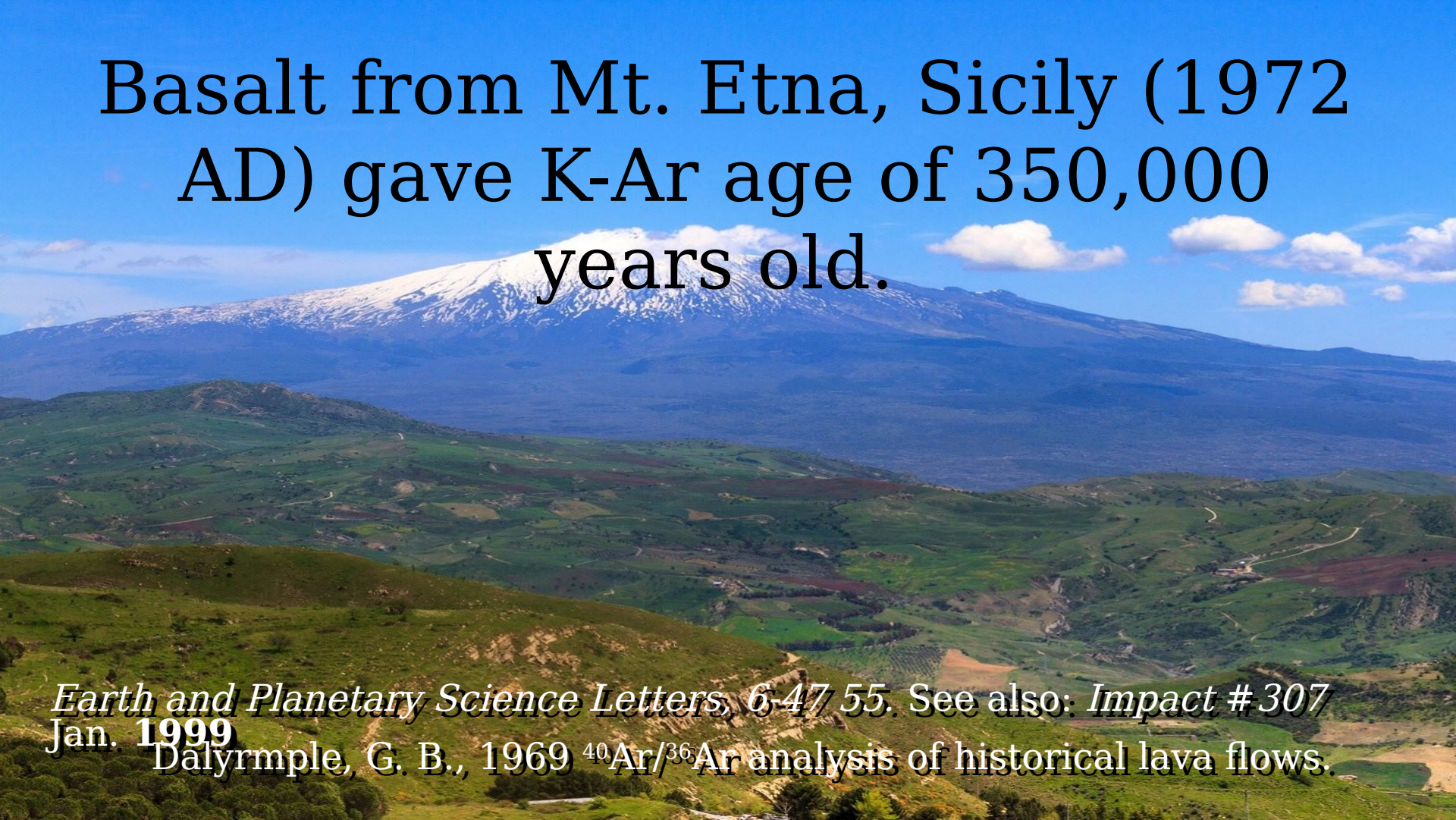
Age when tested = 40 years

**K-Ar date = 8.5 Million
years**

<https://www.icr.org/article/what-about-radioisotope-clocks>

Basalt from Mt. Etna, Sicily (122 BC) gave K-Ar age of 250,000 years old.

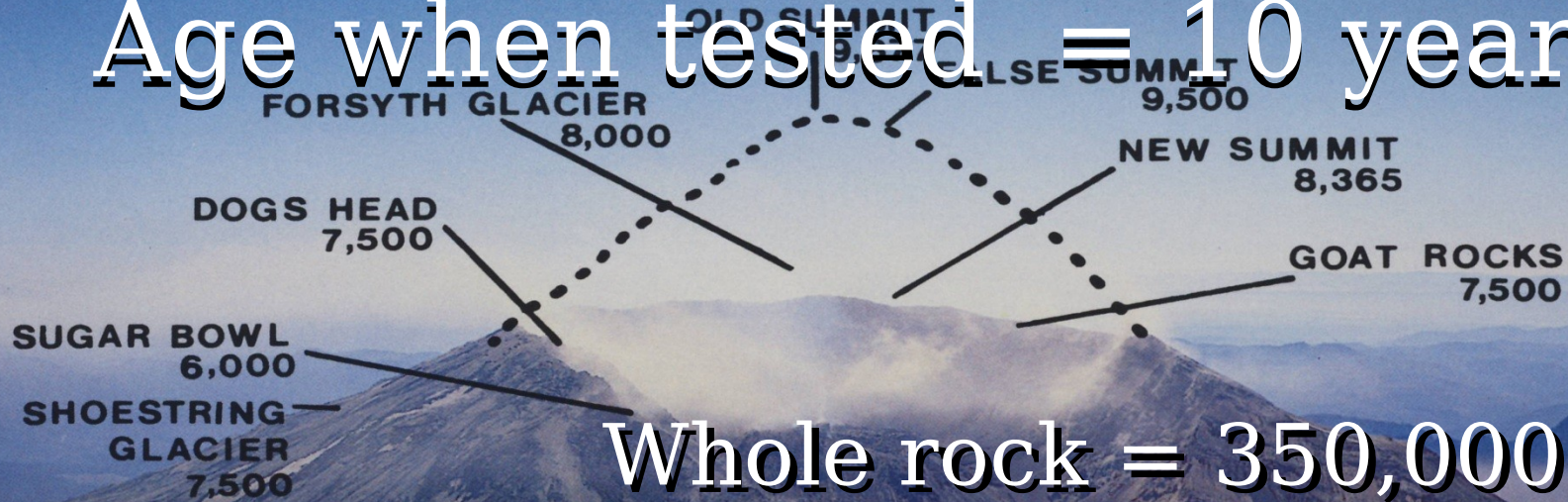
Earth and Planetary Science Letters, 6:47-55. See also: *Impact #307*
Dalyrmples, G. B., 1969 ⁴⁰Ar/³⁹Ar analysis of historical lava flows.



Basalt from Mt. Etna, Sicily (1972
AD) gave K-Ar age of 350,000
years old.

Earth and Planetary Science Letters, 6-47 55. See also: *Impact* # 307
Jan. 1999
Dalyrmpole, G. B., 1969 $^{40}\text{Ar}/^{36}\text{Ar}$ analysis of historical lava flows.

Age when tested = 10 years



Whole rock = 350,000 yrs

Feldspar = 340,000 yrs

Amphiboles = 900,000 yrs

Mt. St. Helens

<https://www.icr.org/article/what-about-radiisotope-clocks>

Pyrroxenes = 700,000 yrs

Mount Erebus

Age when tested = 17
years

K-Ar date = 1.6 Million
years

<https://www.icr.org/article/what-about-radioisotope-clocks>

Sunset Crater basalt

Age when tested = 950
years

K-Ar date = 27 Million

<https://www.icr.org/article/what-about-radioisotope-clocks>

Potassium-Argon age Greater than the Age of the Universe

The K^{41} and A^{40} have been determined in seven specimens of five falls of iron meteorites... Under the usual assumptions accepted for this method, ages have been calculated and found to be close to 10×10^9 years, which is about twice the reported age of stone meteorites, and also higher than the supposed age of the universe. (evolutionary age of the universe = 1.3×10^9)

<https://www.sciencedirect.com/science/article/pii/0016703758900085>

Potassium Argon Dating:

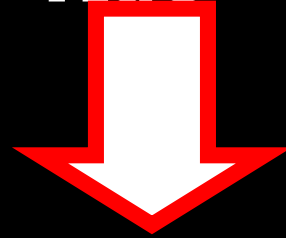
Rocks of **Known**
Age



K-Ar Dating

**Doesn't
Work**

Rocks of **Unknown**
Age



K-Ar

**Assumed to
Work**

Potassium Argon Dating:

Rocks of **Known**
Age



K-Ar Dating

**Doesn't
Work**

Rocks of **Unknown**
Age
> 100,000 years

K-Ar Dating

**Assumed to
Work**



Radiometric Dating:

Objects of **Known**
Age



**Doesn't
Work**

Objects of **Unknown**
Age



**Assumed to
Work**

Minimum Reliable Radiometric Dates:

1. Carbon-14: > 500 years.

2. Uranium-Thorium: > 10,000 years.

3. Potassium-Argon: > 100,000 years.

4. Uranium-Lead: > 1 million years.

5. Rubidium-Strontium: > 10 million years.

6. Lutetium-Hafnium: > 1 million years.

7. Samarium-Neodymium: > 10 million years.

8. Rhenium-Osmium: > 4.5 billion years

9. Argon-Argon: > 100,000 years old.

10. Lead-Lead: > 4.5 billion years ago.

11. Thorium-Lead: > 1 million years

12. Fission Track: > a few million years

13. Cosmogenic Nuclide: > a few million years.

14. Iodine-Xenon: > 4.5 billion years.

15. Chlorine-36: > tens of thousands of years.

16. Beryllium-10: > tens of thousands of years.

17. Aluminum-26: > tens of thousands of years.

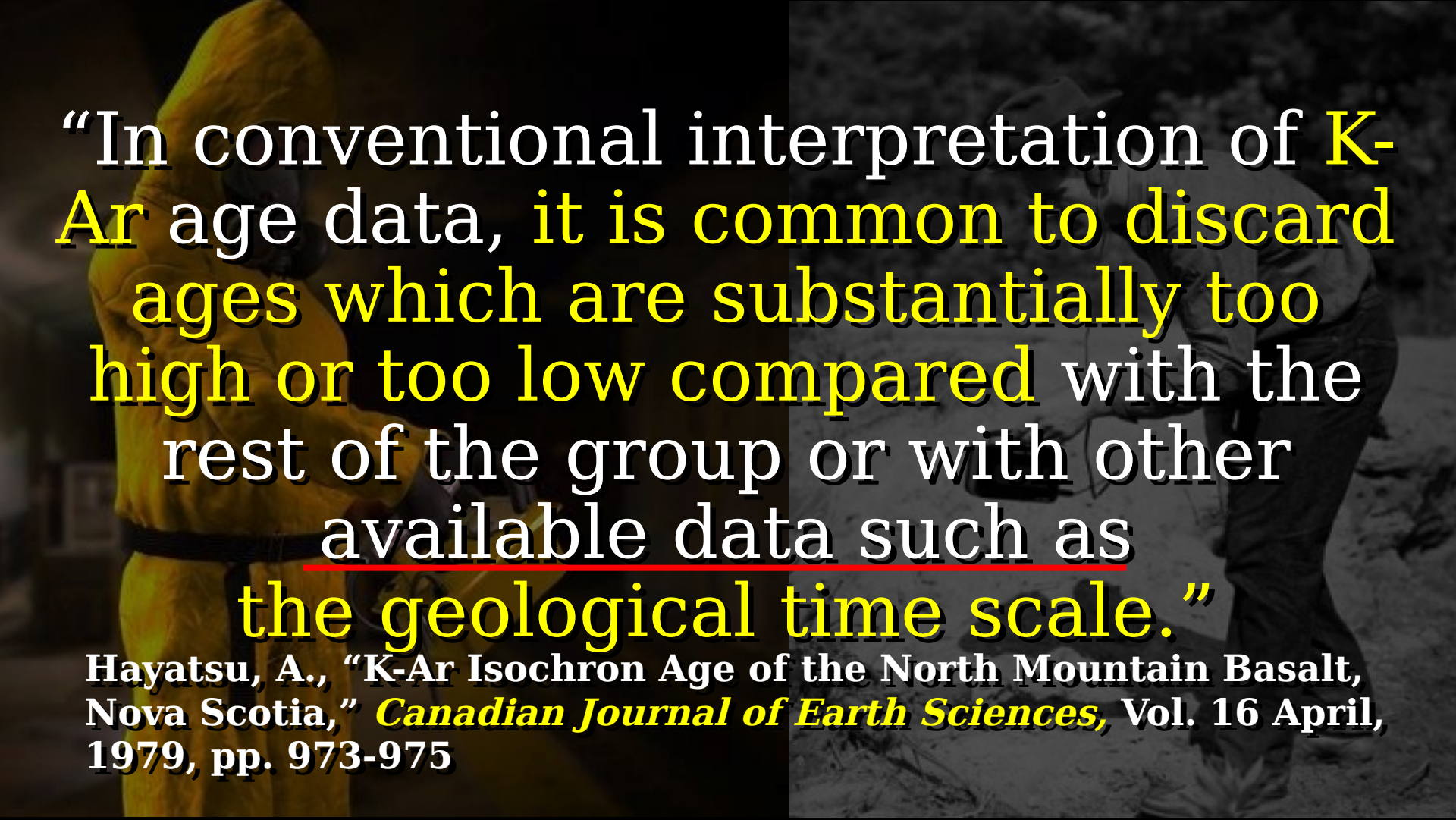
18. Helium Dating: > tens of thousands of years.

19. Protactinium-Thorium: > tens of thousands of years.

20. Protactinium-Uranium: > tens of thousands of years.

21. Lead-210: > 100 years

Notice: Only 2 dates might be able to be verified. All others CAN NOT be verified! Info from Chat GPT 3.5 on 25Apr'24.



“In conventional interpretation of **K-Ar** age data, it is common to discard ages which are substantially too high or too low compared with the rest of the group or with other available data such as the geological time scale.”

Hayatsu, A., “K-Ar Isochron Age of the North Mountain Basalt, Nova Scotia,” ***Canadian Journal of Earth Sciences***, Vol. 16 April, 1979, pp. 973-975

“In conventional interpretation of K-Ar age data, it is common to discard ages which are substantially too high or too low compared with the rest of the available data, such as the geologic scale.”

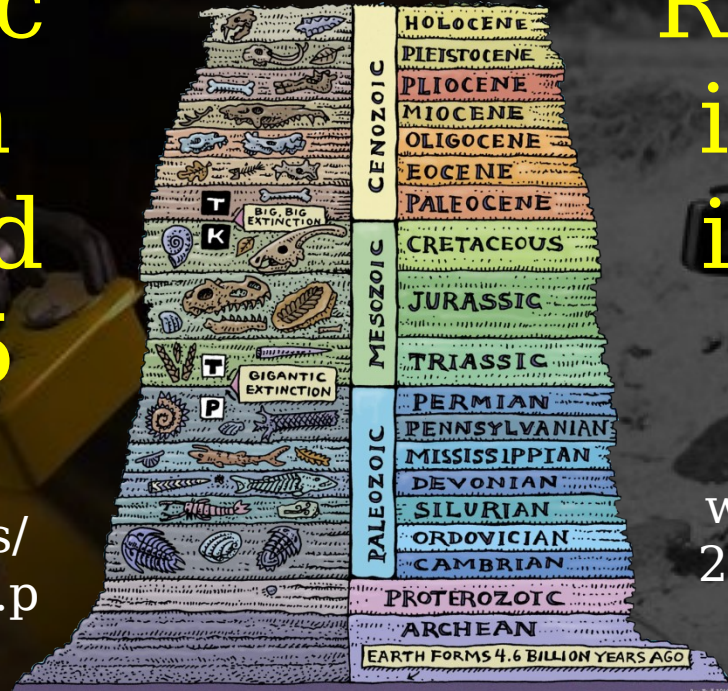
Hayatsu, A., “K-Ar Isotopes from the North Mountain Basalt, Nova Scotia,” *Canadian Journal of Earth Sciences*, Vol. 16 April, 1979, pp. 973-975



This is the bible of the
evolutionists


Geologic
column
invented
in 1795

[www.tccsa.tc/articles/
the_geologic_column.p
df](http://www.tccsa.tc/articles/the_geologic_column.pdf)



Radiometr
ic dating
invented
in 1907

[www.geologyin.com/
2015/02/radiometric-
dating.html](http://www.geologyin.com/2015/02/radiometric-dating.html)



**Let's see just one
example
of how they
change the data.**

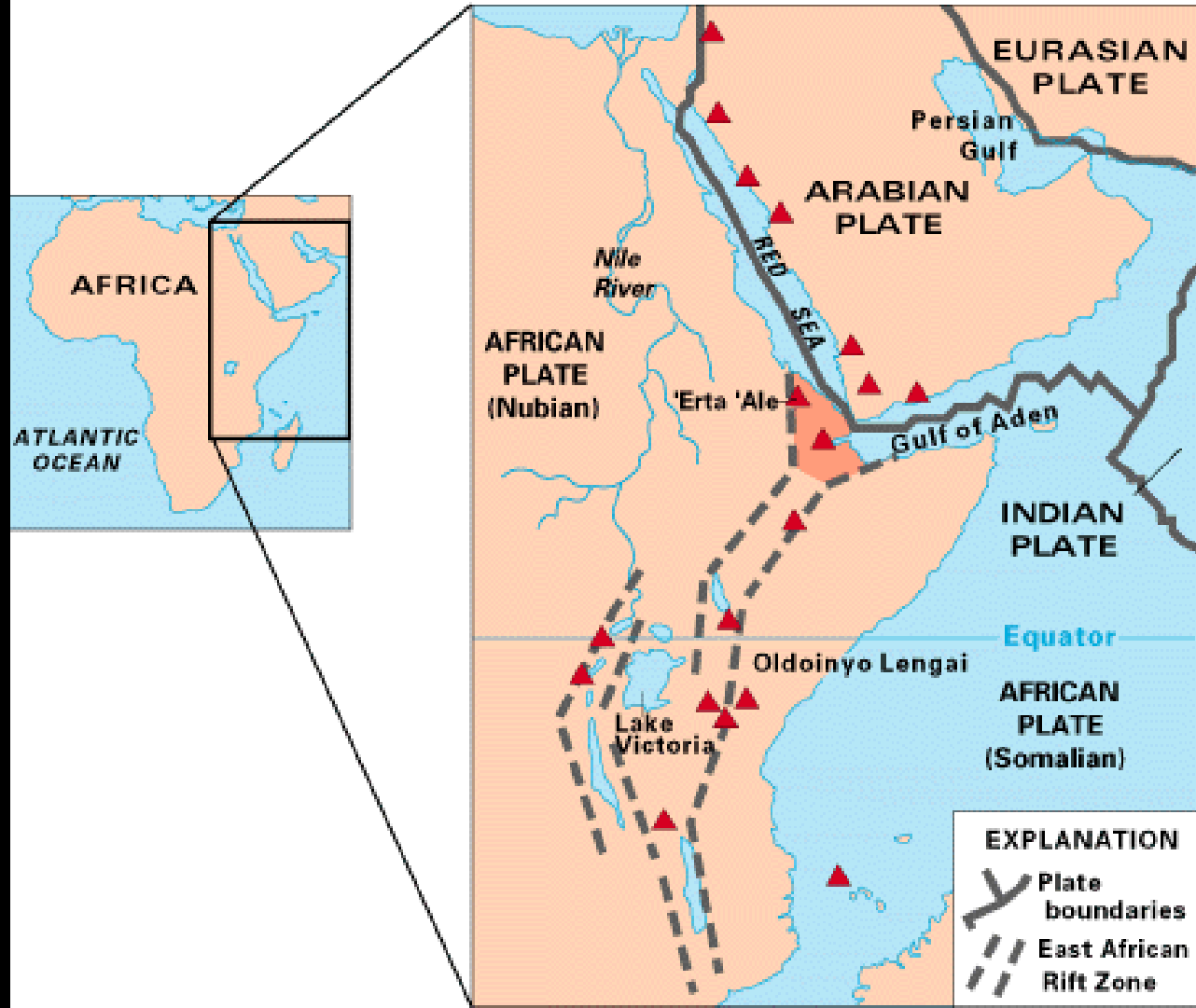
Dr. Kay Behrensmeyer pointing out mistakes in the museum's diorama.



She
Began
in 1972

in

East
Africa



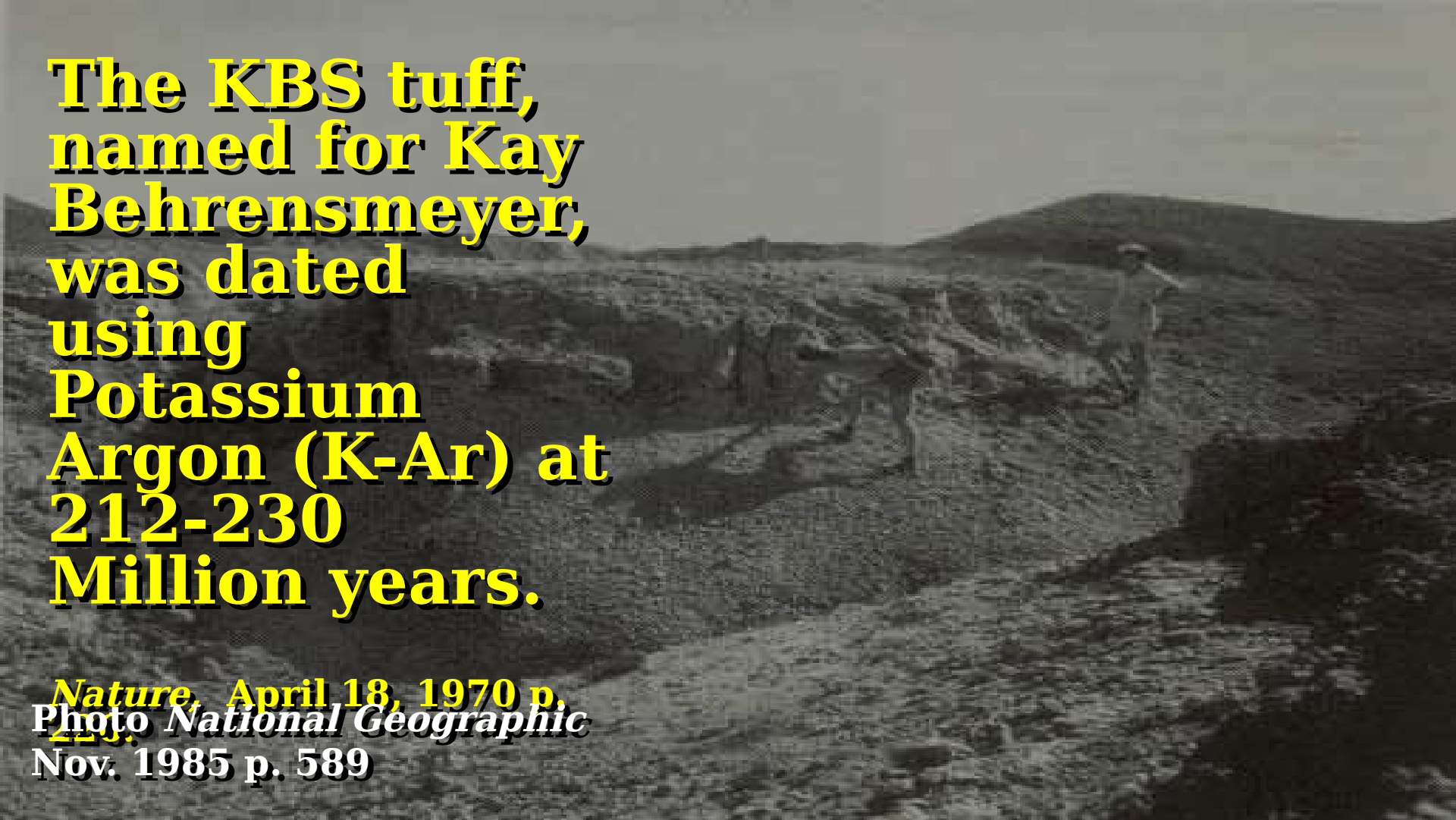
**Richard Leakey
found
KNM-ER 1470.
It looks like a
modern human
but was ^{14}C
dated at 2.9
million years
old.**



K. BEHRENSMEYER, Nature, vol 226, pp 225-226, April 18, 1970
<https://kgov.com/skull-1470-broadcast-on-marvin-lubenow-dating-chronology>

**The KBS tuff,
named for Kay
Behrensmeyer,
was dated
using
Potassium
Argon (K-Ar) at
212-230
Million years.**

***Nature*, April 18, 1970 p.
223.
Photo *National Geographic*
Nov. 1985 p. 589**





Strata

← supposedly 212-
230 million
years old

Modern human
skull

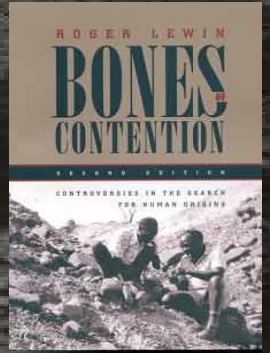
← supposedly
2.9 million

Can't have that!

They re-dated
10 different
samples and
changed the K-
Ar dates for the
tuff to
.52-2.64 million
years old.



2.9 million
now fits

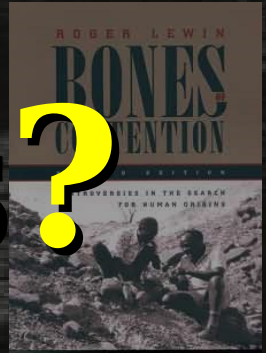


*Bones of
Contention* Roger
Lewin p. 257



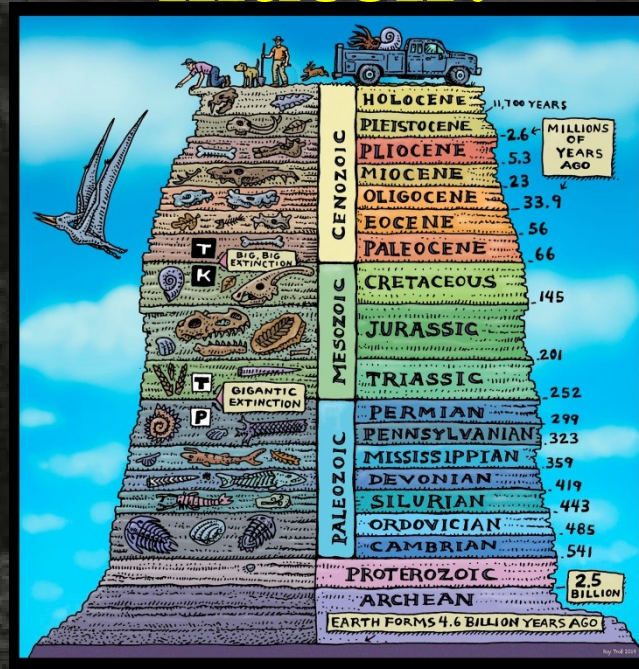
Why?

**In order to
meet their
expectations?**



Bones of Contention Roger Lewin
p. 257

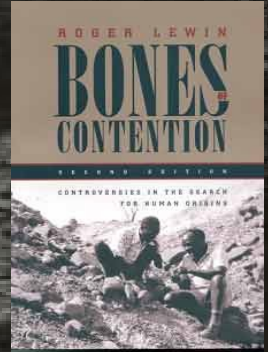
What are their expectations?
To what do they want the dates to
match?



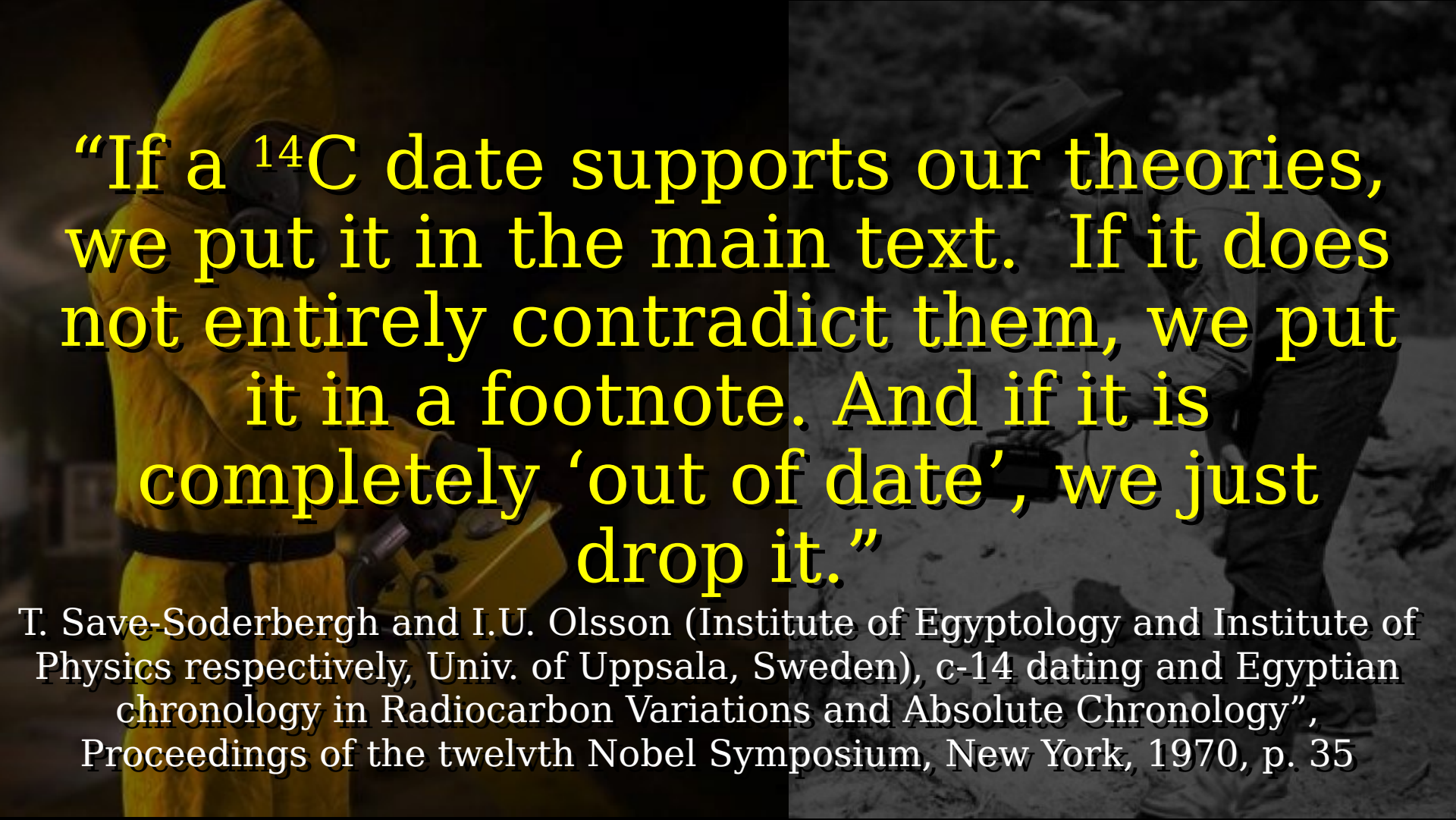
Laid
down in
less than
300 days

**K-Ar dates
changed from
212 million to
.52- 2.64
million**

**This more than
a 500% error!**



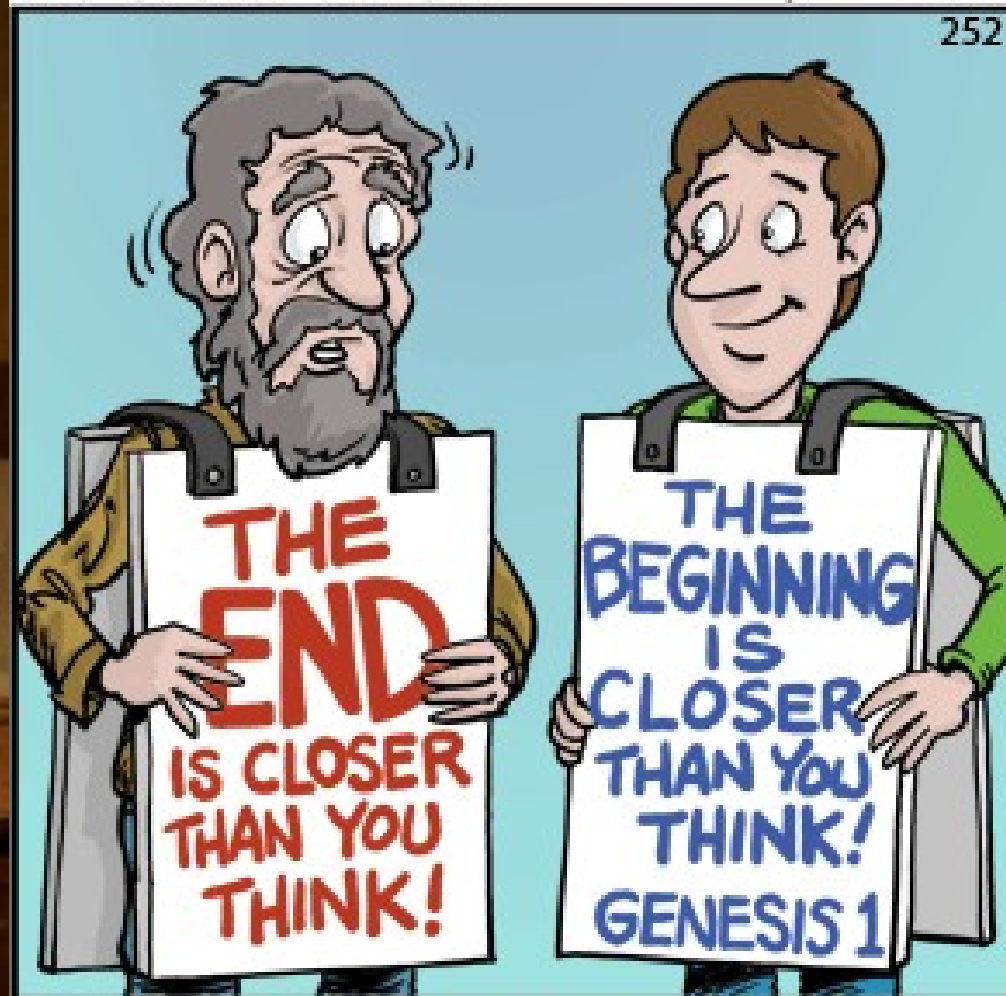
Bones of Contention Roger Lewin
p. 257

The background of the slide is a dark, composite image. On the left, a person is wearing a bright yellow full-body protective suit and a respirator mask, holding a piece of equipment. On the right, a person is wearing a dark hat and clothing, working in a field or excavation site. The text is overlaid on this background.

“If a ^{14}C date supports our theories, we put it in the main text. If it does not entirely contradict them, we put it in a footnote. And if it is completely ‘out of date’, we just drop it.”

T. Save-Soderbergh and I.U. Olsson (Institute of Egyptology and Institute of Physics respectively, Univ. of Uppsala, Sweden), c-14 dating and Egyptian chronology in Radiocarbon Variations and Absolute Chronology”,
Proceedings of the twelvth Nobel Symposium, New York, 1970, p. 35





Points to Ponder

1. K-Ar dating labs do not like to date samples that are less than 2 million years old. They say it is not accurate then.
2. If it is supposed to be accurate for a 3 million year old rock, how can we verify that? We can't!
3. All radiometric dating rely on many assumptions.
4. If **any** assumption is off then so is the result.

Points to Ponder

6. K-Ar dating is apparently wildly inaccurate.
7. Man's science is constantly changing.
8. The Bible does not change.
9. The Bible shows the Earth is about 6,000 years old.
10. If this is true we need to reevaluate our assumptions and acknowledge their limitations.
11. Next Carbon-14 dating will show that

The Bottom Line!

1. The Bible has NEVER been proven wrong.
2. The Bible can be trusted in all matters, including science.
3. "All scripture *is* given by inspiration of God, and *is* profitable for doctrine, for reproof, for correction, for instruction in righteousness:" 2 Timothy 3:16 (KJV)

Where is your faith?

God's word

Man's word

Never proven
wrong

Constantly
changing

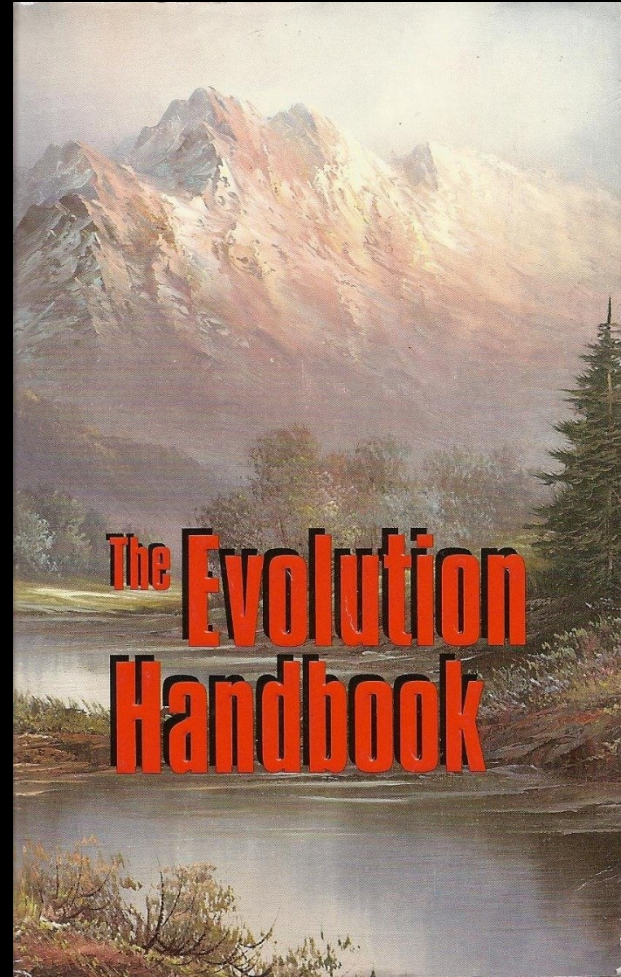




For more on
the
other dating
methods **See:**

***The Evolution
Handbook***

Vance Ferrell, *The Evolution Handbook*, 2001,
Evolution Facts, Inc., Altamont, TN



RSR: The Skull 1470 Dating Saga

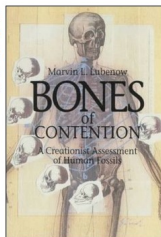
Nov 20, 2015

- Playtime:
- Discuss: [TOL Thread](#)

DOWNLOAD



*** Hysterical Historical Radiometric Dating Saga:** Real Science Radio host Bob Enyart and Fred Williams discuss the hysterical dating saga of the famed fossil Skull 1470. And as the story unfolds, from the pages of the world's most prestigious peer-reviewed science journal, the guys can't help but notice the astounding flexibility of radiometric dating. RSR hopes you enjoy this stroll down memory lane with Skull 1470.



*** A Skull in the British Museum:** Bob Enyart photographed the 'Broken Hill skull' during his travel to England in preparation for his debate against the King James Only false teaching. This skull is said to be of a *Homo heidelbergensis* but we highly recommend that if you'd like to gain reliable information on early human remains, that you listen to the program: [The Most Informative Neanderthal Show Ever](#).

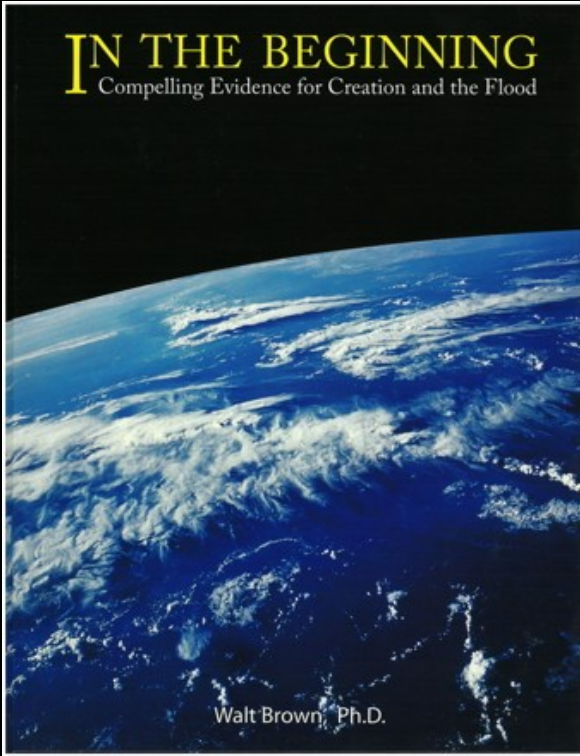


<https://kgov.com/skull-1470-broadcast-on-marvin-lubenow-dating-chronology>

Check out kgov.com/lists



https://www.youtube.com/watch?v=Xq6kUbLzYCc&ab_channel=BryanNickel



[https://hpt.rsr.org/onlinebook/
Radioactivity2.html#wp7826136](https://hpt.rsr.org/onlinebook/Radioactivity2.html#wp7826136)

<https://kgov.com/9>

If radiometric dating
does not give
accurate dates for
things that we can
verify,

then why should we
accept it for dates
we can not verify?

